The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

Vol. 31 No. 1 TULSA, OKLAHOMA, MAY 19, 1932

Copyright, 1932, by The Petroleum Publishing Co.

Table of Contents

SPECIAL ARTICLES

Crude Oil Situation Is Strengthened 11
By Andrew M. Rowley
Champlin decision and favorable developments in California are factors. Keep supply and demand in balance.

Natural Gasoline Market Problems Discussed 12
By W. T. Ziegenhain

Oklahoma Curtailment Law Upheld 13

Interstate Compact Bill Rewritten 13

Supply and Demand Both Increase 14
By C. O. Willson

Equipment Firms Need New Policy 15
By Andrew M. Rowley

Marketing of Natural Gasoline 16
By J. A. LaFortune

Properties of Products from Vapor Recovery System 17
By Emby Kaye

Back-pressure Tests Point Way to Better Operation 18
By Thomas F. Smiley

Teagle Sees Oil Leading in Recovery 22

No Need to Apologize (Editorial) 24

Bureau of Mines Report for March 38

Stabilization of Export Market Near 39
By A. E. Mockler

Manufacture and Sale of Solid Carbon Dioxide 41
By H. Ross Campbell

Properties of Liquid Petroleum Gases 44
By T. W. Legatski

Placing Natural Gasoline Industry on Economic Basis 48
By R. C. Alden

Larger But Fewer Gasoline Plants 55
By W. T. Ziegenhain

Personnel of Natural Gasoline Industry 56-63

Superintendents of Plants 64

Gasoline Plants Located by States 65-71

Field Problems and Their Solution 109
Edited by Thomas F. Smiley

President Holmes on Stand at Austin 117

FIELD OPERATIONS

Late Fields 39

Tioga Gas Field 40

East Texas 73
By L. E. Bredberg

West Texas and North Texas 75
By L. E. Bredberg

Michigan 77
By George A. Whitney

Oklahoma 83-84
By W. A. Spinney

Kansas 86
By W. A. Spinney

North Louisiana-Arkansas, Mississippi 87
By J. R. Crumpton

Gulf Coast 88
By Neil Williams

Southwest Texas 91
By B. D. Stevenson

Canada 92
By Victor Lauriston

Central West 92
By George A. Whitney

California 95
By L. P. Stockman

Rocky Mountain Area 98
By Tolbert R. Ingram

Eastern Fields 100
By Staff Correspondent

REFINING AND MARKETING

Refinery Prices Lower in Oklahoma 26
By C. O. Willson
Quotations on gasoline and kerosene reduced as supply exceeds demand.

Unfavorable Weather Slackens Chicago Buying 28
By Robert C. Conine

East Coast Refined Oils Trend Higher 29
By A. E. Mockler

Refinery and Crude Prices 30-31

Tank Wagon Quotations 32

Of Interest to Sales Departments 33

Brief Items for Petroleum Refiners 35

Natural Gasoline Manufacture 36

Technical Questions Answered 113
By C. K. Francis, Ph. D.

DEPARTMENTS OF GENERAL INTEREST

Personal Paragraphs About Oil Men 110

Natural Gas Developments 114

Oil Industry Equipment and Supplies 116

Classified Want Advertisements 118-119

The Advertisers' Index 120

BRANCH OFFICE CORRESPONDENTS

L. E. Bredberg, 601 Petroleum Building, Fort Worth, Texas.
Robert C. Conine, Room 1416, 6 North Michigan Ave., Chicago, Ill.
J. R. Crumpton, 540 Ricou Brewster Building, Shreveport, La.
Paul A. Elliott, Chronicle Office, Muskegon, Mich.
Tolbert R. Ingram, 130 State Office Building, Denver, Colo.
Charles E. Kern, 606 District National Bank Building, Washington, D. C.
Victor Lauriston, 35 Stanley Ave., Chatham, Ontario, Canada.
B. E. V. Luty, Bessemer Building, Pittsburgh, Pa.
A. E. Mockler, Suite 2803, No. 19 Rector Street, New York, N. Y.
B. D. Stevenson, 1504 Milam Building, San Antonio, Texas.
L. P. Stockman, 522 Union Oil Building, Los Angeles, Calif.
Leon H. Walter, Oil City Derrick, Oil City, Pa.
George A. Whitney, Box 98, Main Post Office, Toledo, Ohio.
Neil Williams, 1116 Second National Bank Building, Houston, Texas.

Refinery Section Starts on Page 26

DRAVO CONTRACTING COMPANY PUTS IT'S OK on TONCAN IRON PIPE

The illustration shows a 10,000 barrel capacity oil barge of standardized design built by Dravo Contracting Company, Pittsburgh, Pa. The hull is 175 feet long, 40 feet wide and eleven feet six inches deep. These barges are designed for seaboard and harbor service, transporting fuel oil, refined oil or gasoline from refineries to consuming ports.

Toncan Iron Pipe is used in 4, 6 and 8-inch sizes for cargo piping, extending the full length of the barge. Extra heavy Toncan Iron 2-inch Pipe is used for steam smothering and fire prevention lines. All cargo heating coils are also of Toncan.

Toncan Iron Pipe was selected after a thorough investigation proved the high rust resistance of this alloy of refined iron, copper and molybdenum in service where the combined action of moisture, salt and sulphur quickly play havoc with ordinary ferrous pipe.

It will pay you to investigate the merits of Toncan Iron. Write for the 64-page book, "Pipe for Permanence."

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

Crude Oil Situation Is Strengthened

Highest production in 1931, week ending Aug. 8, average daily output 2,551,807 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Champlin Decision and Developments in California Are Factors. Must Keep Supply and Demand in Balance

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1931 was for week ending Sept. 5, with average output of 1,736,007 bbls.

The decision of the United States Supreme Court in the Champlin case is of the utmost importance to the entire petroleum industry. Oklahoma laws providing for the curtailment of crude oil production to market demand are sustained in the opinion of the highest court of the nation. This is the first decision by the Supreme Court on proration of crude oil production and, naturally, the unanimous verdict was received with acclaim by the very large majority of oil men who have supported proration in the hopes and belief this plan offered the best solution to the problem of balancing supply and demand.

There may be differences of opinion as to the wisdom of adopting the policy of prorating crude oil production at the time this plan was inaugurated several years ago, but the industry has been committed to this method too long for any change to be made now. In addition, engineers and production men have come to view the policy in a different light. It really is one way of procuring a greater ultimate recovery from any pool, for it is admitted restricted output with a conservation of the reservoir energy will result in a greater production over a period of time. Government investigations have proved that the recovery from oil pools averaged only from 15 to 20 per cent. Engineers now believe a yield as high as 50 per cent may be recovered from the East Texas Field if the output there is restricted, as under rules of the state railroad commission, and the water drive can be controlled.

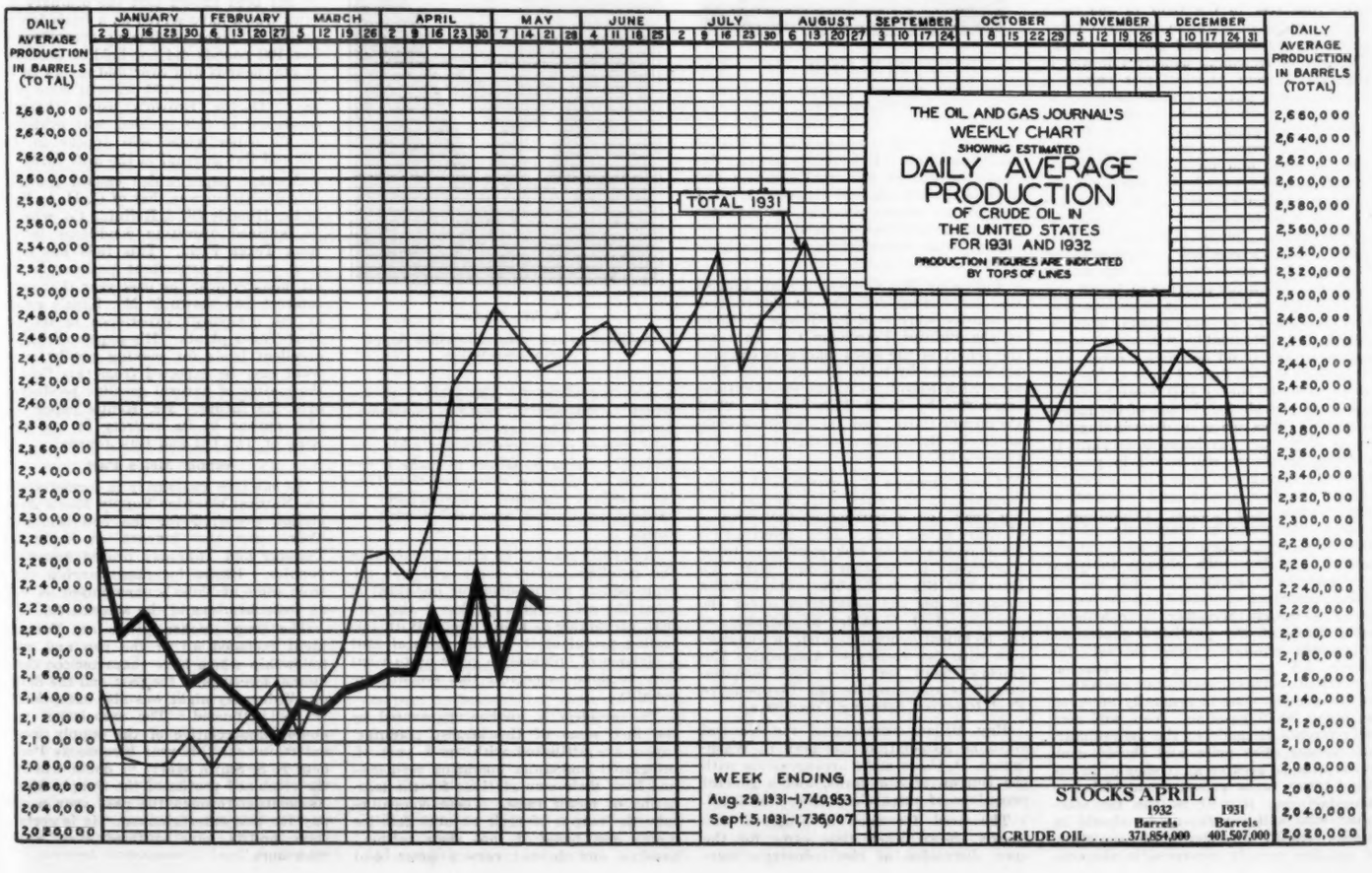
Operators in California are more hopeful than ever a satisfactory solution will be reached in the matter of voluntary curtailment of production there to balance supply and demand. This balance must be maintained throughout the country. Refiners must reduce their runs to stills to prevent a piling up of gasoline stocks which would depress the market. The industry has its best opportunity in many years to make a profit this year and nothing should be permitted to stand in the way of achievement of this object. Prices are still too low and must be increased, both for crude oil and refined products. There is no reason why the industry should not receive such an increase if it uses a little common sense at this time and keeps its operations in line with demand.

CRUDE OIL PRODUCTION IN THE UNITED STATES

Estimated daily average production for the week ending May 14, and a comparison with previous week and one year ago follows:

	May 14	May 7	May 16, 1931
Oklahoma—			
Oklahoma City	116,315	134,985	173,570
Seminole-St. Louis	119,630	113,720	162,130
Remainder of State	206,465	207,510	237,725
Total Oklahoma	442,410	456,215	573,425
East Texas—			
Lathrop	124,024	127,852	48,550
Kilgore	103,305	105,889	115,400
Joiner	105,615	108,745	92,500
Total East Texas	332,944	342,486	256,450
West Texas	184,310	179,910	213,168
North Central Texas	75,448	73,262	80,146
Texas Panhandle	51,652	51,195	61,250
East Central Texas	56,835	56,355	55,197
Gulf Coast Texas	107,595	105,424	151,075
Southwest Texas	60,146	57,271	68,123
Total State of Texas	868,930	865,903	885,409
Kansas	96,220	94,110	107,480
North Louisiana	29,520	29,695	39,775
Gulf Coast Louisiana	37,585	37,393	31,182
Arkansas	34,385	34,590	46,755
Eastern fields	119,000	119,000	111,500
Rocky Mountain area	82,051	84,505	99,516
California—			
Santa Fe Springs	66,000	65,750	72,500
Long Beach	81,500	82,500	87,500
Playa Del Rey	19,000	18,000	30,000
Elwood	16,500	16,500	34,250
Kettleman Hills	58,000	65,000	38,000
Remainder of State	277,000	271,750	274,000
Total California	518,000	519,500	536,250
Total United States	2,228,101	2,240,911	2,431,292

→ **Decrease, 12,810 Bbls. Daily** ←



Natural Gasoline Manufacturers Discuss New Market Problems

Eleventh Annual Convention Finds Industry Can Recover Rapidly

By W. T. Ziegenhain

The Natural Gasoline Association of America completed a most successful three-day convention in Tulsa on Thursday of this week in which the problems of its members were frankly discussed. The meetings were again featured by the large number of technical papers which dealt with manufacturing problems; however, problems of marketing occupied an equal portion of the discussion.

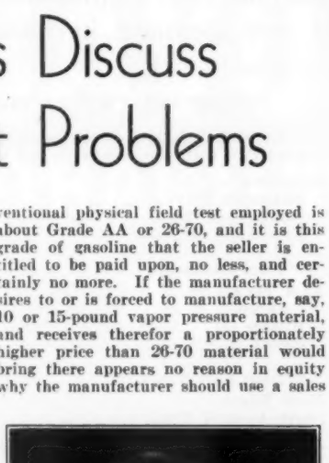
On Tuesday, the opening day, time was divided between reports of the various standing committees and papers. Frank L. Chase, vice president of the Lone Star Gasoline Co., opened the convention Tuesday afternoon with a brief address of welcome. This was followed by the president's address in which S. S. Smith of the Shell Petroleum Corp. outlined the problems confronting the industry and summarized the activities of the association for the past year. Mr. Smith thanked the members of the various committees for their willingness to work together for a common good.

Gas Contract Committee

One of the reports offered by the various standing committees was that of T. R. Goebel of the Skelly Oil Co. its chairman of the gas contract committee. The importance of the work of this committee was strongly manifested this year because of the low market value of the industry's finished products. Mr Goebel outlined the work of the gas contracts committee in part as follows:

"There has been considerable discussion upon the subject of the relationship between buyer and seller with reference to price and test in the light of the more stable grades of gasoline that are being made at our casinghead gasoline plants. The line of reasoning usually followed is that the present physical test employed for settlement purposes with the seller in accordance with existing contracts was adopted and promulgated on the theory that certain grades of gasoline were to be manufactured and marketed, the making of which grades usually left the manufacturer a margin of production above actual physical tests which margin was referred to as "plant efficiency." This plant efficiency resulted in certain ratios of gas cost to gross returns to the manufacturer. With the increase of stable and more stable gasoline it is doubtless true the 'efficiency' of our plants had declined and presumably will continue to decline if the trend becomes greater, and it appears it will, toward more stable gasolines. On the theory that most purchase contracts provide for the use of the manufacturer's sales price in determining the value of the gas purchased it is plain to see this procedure will result in proportionately higher gas costs all the time.

"In the late spring and summer of 1931 when the almost revolutionary change was made in practically all the then existing contracts most of the stipulations covering such change in price provided that regardless of what the existing contracts contained, the value of the gas would thereafter be calculated on a basis of the published quotations in certain reputable trade journals for Grade AA gasoline or its substantial equivalent. This substantial equivalent at the present time is generally accepted as being 26-70 gasoline. You will note no reference is made to the manufacturer's actual sales price and should such sales price be greater as it should, in the event lower vapor pressure materials are manufactured, it will be the manufacturer who will benefit, as he should in justice benefit. In other words, the grade of gasoline usually recovered in the conventional physical field test employed is about Grade AA or 26-70, and it is this grade of gasoline that the seller is entitled to be paid upon, no less, and certainly no more. If the manufacturer desires to or is forced to manufacture, say, 10 or 15-pound vapor pressure material, and receives therefor a proportionately higher price than 26-70 material would bring there appears no reason in equity why the manufacturer should use a sales price greater than substantially that of 26-70 gasoline. I believe this has become the almost universal practice and I think justly so. If this continues I can see no reason why the ratio of gas costs to gross proceeds should change because of the manufacture of superstable grades of gasoline."



S. S. Smith

President Natural Gasoline Association of America

Following Mr. Goebel's report, that of the gas testing and the standardization committee were read by George P. Bunn of the Phillips Petroleum Co. In turn, the report of the sales managers committee was read by S. B. Crooks of the Empire Oil & Refining Co., the specifications committee by R. E. Baker of the Shell Petroleum Corp., and the technical committee by R. C. Alden of the Phillips Petroleum Co.

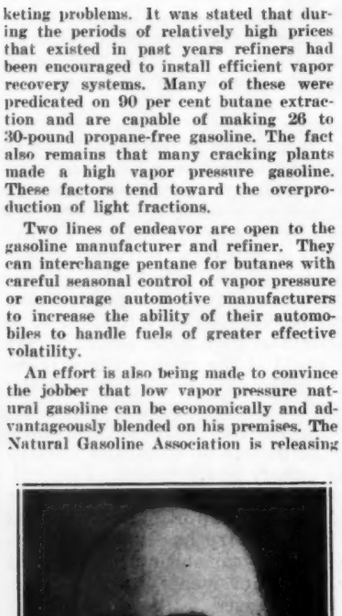
A new program of research is to be undertaken by the association in the coming year and a portion of the work is already under way. This reference is made to the vapor lock road tests to be conducted in co-operation with the Bureau of Standards. The work is being conducted for the association under the direction of R. C. Alden as chairman of the technical committee and, in conjunction with the Society of Automotive Engineers' work on "fuel line temperatures," is sponsored by the Co-operative Fuel Research Steering Committee.

Ray Miller, secretary of the Natural Gasoline Association, has been in Washington, D. C., to make arrangements with the Bureau of Standards, and a general procedure of research has been outlined.

The need for such a program was clearly shown when time came for the open discussion of the industry's marketing problems. It was stated that during the periods of relatively high prices that existed in past years refiners had been encouraged to install efficient vapor recovery systems. Many of these were predicated on 90 per cent butane extraction and are capable of making 26 to 30-pound propane-free gasoline. The fact also remains that many cracking plants made a high vapor pressure gasoline. These factors tend toward the overproduction of light fractions.

Two lines of endeavor are open to the gasoline manufacturer and refiner. They can interchange pentane for butanes with careful seasonal control of vapor pressure or encourage automotive manufacturers to increase the ability of their automobiles to handle fuels of greater effective volatility.

An effort is also being made to convince the jobber that low vapor pressure natural gasoline can be economically and advantageously blended on his premises. The Natural Gasoline Association is releasing a blending chart for the jobbers to use which is intended to make it convenient for them to determine the volume of certain grades of natural to use with predefined refining naphthas to make a motor fuel of improved characteristics. Thus the natural gasoline manufacturer is brought into direct competition with refiners.



A. W. Burket

President of the Natural Gasoline Supply Men's Association

It is fully realized by all concerned that the gasoline manufacturer will not tolerate selling his product for one-third of what the refiner gets for his if they are both acceptable as motor fuel. With this feeling prevalent it is only natural that a division of opinions be given as to what may be done to correct this seeming inequality.

The problem is further aggravated by the fact some of the largest manufacturers are affiliated with, or a part of, integrated companies operating refineries and have their own stations for the marketing of motor fuels. These companies take the output of their natural gasoline plants and blend it into their refinery gasoline and do not care a great deal what the spot price on natural is. In some cases these companies have been buying natural gasoline on the spot market to augment their own production and have been accused of actually depressing the market. While the interests of the gasoline manufacturers now seem to be less in accord than at times in the past, the problem is not nearly as serious as the one the industry faced in its infancy when its product was looked upon in the same light as a young outlaw. It is because research and public acceptance has placed its products in a position to compete on the open market that manufacturers must now decide whether they shall next force their way into the field of marketing direct and take advantage of these facts or continue to assume a second position to take what is given them.

In the past the Natural Gasoline Association has limited its interest to a program of research and up to this time has not entered into any form of "understanding" in marketing. However, the tone of the convention suggests that the problem of marketing will take a goodly share of the attention of the association's members in the future, at least until some definite course may be decided upon.

Doctor Brown's Paper

Another paper which called for considerable open discussion was that written by Dr. G. G. Brown and Mott Souders, Jr., of the University of Michigan in which they offer data that will aid in designing absorption equipment for use in those plants operating at high pressure. It has been known that the ordinary gas laws which have served as a basis for the design of plant equipment operating below 100 pounds did not hold at pressures of 300 pounds and over and errors in design amounting to 300 per cent were present. Doctor Brown's usual thorough treatment of this problem was evidenced in his paper which will appear in The Oil and Gas Journal in the near future.

Another paper which caused considerable discussion was that of G. H. L. Kent of the Humble Oil & Refining Co. wherein he outlined operating conditions in the East Texas Field. This field has occupied such an important position in the oil industry over the past year that much interest was shown in Mr. Kent's review of the company's experience in its two East Texas plants. His paper offered an excellent basis for making prediction of what may be expected from this field in the matter of natural gasoline production over the future. Mr. Kent's paper will also appear in its entirety in an early issue of The Oil and Gas Journal.

Supply Men's Part

As has been customary in former years, the Natural Gasoline Supply Men's Association prepared for the entertainment. This year the lunches at noon on Tuesday and Thursday proved unusually popular. Praise for these lunches came from some of Tulsa's unemployed as well as from members of the association.

The stag smoker given on Tuesday night included all of the pep and good fellowship which have characterized these annual meetings in the past and the dance on Wednesday night was also exceptionally well attended. The association was doubly appreciative of the supply men's entertainment this year because as President S. S. Smith said: "I doubt whether the combined profits of the Supply Men's Association through the past year would pay for this entertainment. It is certain their profits have suffered even worse than ours."

Oklahoma Curtailment Law Is Upheld

U. S. Supreme Court Unanimously Sustains Conservation Statute Except Penalty of Receivership. Common Pool Ruling

WASHINGTON, D. C., May 16.—The United States Supreme Court today unanimously upheld the Oklahoma conservation law in the case of the Champlin Refining Co. of Enid, Okla.

The opinion, read by Justice Pierce Butler, said:

"None of the commission's orders have been made for the purpose of fixing the price of crude oil or has had that effect. When the first order was made the price was more than $2 a barrel but it declined until at the time of the trial it was only 35 cents. In each case the commission has allowed to be produced the full amount of the market demand of each pool.

"It was not shown that the commission intended to limit the amount of oil entering interstate commerce for the purpose of controlling the price of crude oil or its products or of eliminating plaintiff or any other producer or refiner from competition or that there was any combination among plaintiff's competitors for the purpose of restricting interstate commerce in crude oil or its products or that any operators' committee made up of plaintiff's competitors formulated the proration orders. The evidence before the trial court undoubtedly sustains the findings above referred to, and they are adopted here.

"Plaintiff herein insists that the act is repugnant to the due process and equal protection clauses of the fourteenth amendment.

"We need not consider its suggestion that the business of production and sale of crude oil is not a public service and that it does not devote its property to the public use. The proration orders do not purport to have been made, and in fact, were not made, in respect of service or charges of any calling so affected with a public interest as to be subject to regulation as to rates or prices.

Improvident Use

"Plaintiff insists that it has a vested right to drill wells upon the lands covered by its leases and to take all the natural flow of oil and gas therefrom so long as it does so without physical waste and devotes the production to commercial uses. But if plaintiff should take all the flow of its wells there would inevitably result great physical waste even if its entire production should be devoted to useful purposes.

"The improvident use of natural gas pressure inevitably attending such operations would cause great diminution in the quantity of crude oil ultimately to be recovered from the pool. Other leasers and owners of land above the pool would be compelled, for self protection against the plaintiff's taking, also to draw from the common source and so to add to the wasteful use of lifting pressure. And because of the lack especially on the part of the nonintegrated operators of means of transportation or appropriate storage and of market demand, the contest would, as is made plain by the evidence and findings, result in surface waste of large quantities of crude oil.

Common Supply

"In Oklahoma as generally elsewhere, landowners do not have absolute title to the gas and oil that permeate below the surface. These minerals differing from solids in place such as coal and iron, are fugacious and of uncertain movement within the limits of the pool.

"Every person has the right to drill wells on his own land and take from the pools below all the gas and oil that he may be able to reduce to possession, including that coming from land belonging to others, but the right to take and thus to acquire ownership is subject to the reasonable exertion of the power of the state to prevent unnecessary loss, destruction or waste. And that power extends to the takers' unreasonable and wasteful use of natural gas pressure available for lifting the oil to the surface and the unreasonable and wasteful depletion of a common supply of gas and oil to the injury of others entitled to resort to and take from the same pool.

"It is not shown that the rule for proration described in Section 4 or any other provision here involved amounts to or authorizes arbitrary interference with private business or plaintiff's property rights or that such statutory rule is not reasonably calculated to prevent the wastes specified in Section 3."

Not Price Fixing

Justice Butler said he put aside the plaintiff's contentions that Sections 2 or 3 authorized or contemplated, directly or indirectly, regulation of the prices of crude oil. He pointed out that the commission had never made an order under Section 2, and that the court below found that none of the proration orders was made for the purpose of fixing prices. He said that even if Section 2 were held unconstitutional, the orders would stand and make a complete scheme for the accomplishment of the end the legislature had in view when it enacted the statute.

As to the refining company's contention that the proration orders tended to burden interstate commerce, Justice Butler said production was essentially a mining operation and not a part of interstate commerce even though the product obtained was intended to be and in fact was immediately shipped in such commerce.

Answering the refining company's contention that the proration orders in addition to being unauthorized were arbitrary, Justice Butler recited the various things done in the way of gauging the flow of gas and oil to show that instead of being arbitrary, the orders were based on many and well ascertained facts.

"The plaintiff has not shown," he said, "that any act of these agents (of the State measuring and gauging the flow) subjected it to any disadvantage, or that the prorations were arbitrary or discriminatory in any respect."

No Discrimination

Alleged discrimination against the Oklahoma City Field in the administration of the act was held by the court to have no basis in fact.

"The commission has not discriminated against the Oklahoma City Field or any other prorated area nor in favor of the Seminole," said Justice Butler. "The relation between potential production of each pool and the amount of crude oil that could be produced without waste therefrom was not the same in all prorated pools and therefore the applicable percentages of curtailment varied. The same pipe lines and purchasers did not serve or take oil from all the pools, and in some the reasonable market demand was greater in proportion to potential production than in others. Some were prorated longer and had purchasers whose facilities did not extend to others. The constant bringing in of new wells in the Oklahoma City Field has resulted in a continuous and rapid increase of the potential production of that field, whereas market demand for oil there has increased very slowly."

Section 9 Invalid

The court set aside as invalid Section 9 of the act, which would enable the State to proceed against violators of the conservation laws to have their oil properties placed in the hands of receivers.

The Oklahoma commission had appealed from that part of the decree of the lower court holding Sections 8 and 9 not valid. These provisions provided penalties for violation. The Champlin company asserted the other sections were too uncertain and indefinite to warrant the imposition of prescribed penalties and therefore the sections were invalid.

"We do not find any direct or definite allegation in the record," said Justice Butler, "that defendants have threatened or about to cause the plaintiff to be prosecuted under Section 8. It follows that the lower court erred in passing upon the validity of that section and the decree will be modified to declare that no question as to Section 8 was before the court."

The Corporation Commission maintained that no question as to the validity of Section 9 was before the court, a like contention having been made as to Section 8. The Supreme Court disagreed with the commission, saying the record showed the plaintiff having taken crude oil in excess of the quantities allowed by the orders the attorney general brought suit under Section 9 to have a receiver.

Justice Butler said "It appears upon a mere inspection that these general words and phrases are so vague and indefinite that any penalties prescribed for their violation constitute a denial of due process of law. It is not the penalty itself that is invalid, but the exaction of obedience to a rule or standard that is so vague and indefinite as to be really no rule or standard at all."

The court said the decision would not prevent producers of oil from applying to the court for injunctive relief should orders of the commission be unwarranted by conditions in the future.

Justice Butler said there was no evidence that the men named by the commission to administer the prorationing regulations were guilty of "favoritism or dishonesty or that the commission has acted arbitrarily or discriminated in favor of the groups paying such agents or that the plaintiff has suffered any injury by reason thereof."

Judge German's Statement

Judge W. P. Z. German, counsel of Skelly Oil Co., who had charge of the defense of the Oklahoma proration law, as representative of the Mid-Continent Oil and Gas Association, issued the following statement regarding the Champlin decision:

"The Champlin decision of the Supreme Court sustains the validity of the Oklahoma proration law and the authority and orders of the Oklahoma Corporation Commission prorating production in the oil pools of the State to the amount of the market demand.

"The court held that the statute authorizes the commission to limit production to market demand and to require ratable taking, and that this is not price fixing. The two most important parts of the decision are, first, that it is lawful to limit production to reasonable market demands and, second, that each producer may be held down to his ratable share of the amount of the market demand, regardless of the fact that he could produce more than that without wasting any of it on the surface. This is predicated on the principle that every landowner in a pool is entitled to his fair and equitable share of the recoverable oil.

"The decision is a great victory for the oil producing industry and should tend very strongly to stabilize conditions. A great majority of the oil producers have co-operated to sustain and maintain proration, and this decision approves the legality of their course of conduct. The Corporation Commission is entitled to the highest commendation for its determined effort to perform its duty in the enforcement of this law."

INTERSTATE COMPACT MEASURE BEFORE SENATE COMMITTEE

WASHINGTON, D. C., May 16.—Limitation of oil imports to 5½ per cent of the domestic consumption, proposed by the Oil States Advisory Committee, is called for in a bill submitted by Senator Thomas (Democrat), Oklahoma.

Mr. Thomas rewrote an earlier bill, providing for approval of Congress for interstate production compacts to include the import restriction and other amendments proposed by the oil states committee.

The Thomas measure would grant the consent of Congress to compacts between oil states for conservation purposes and the establishment of an interstate oil conservation committee. It would be the duty of this group to advise regarding interstate compacts, to co-operate with agencies designated by Congress for the co-ordination of imports and agreements with foreign producers and to recommend to such agencies the allocation of production of petroleum in foreign countries and the amount to be imported.

The President would be authorized to appoint a federal representative to preside over any negotiation of compacts legalized by the bill. It is further stipulated that "because of the existing necessity, pending the effective date of the compact authorized, but for a period not exceeding three years," the powers of the projected Federal-Interstate Oil Conservation Board might be exercised by a temporary joint committee to consist of the Federal Oil Conservation Board and an Oil States Advisory Committee.

If limited to 5½ per cent of domestic consumption the imports would rise or fall conditioned on the extent of United States producing activity. The imports would be apportioned on the basis of 55 per cent crude, 16 per cent gasoline and 29 per cent other petroleum products.

Oil men propose, as meeting some of the opposition to their proposals, that in case the Tariff Commission determines that the average price for domestic crude petroleum exceeds the average cost of its production, including those in a reasonable profit, the Federal Oil Conservation Board would be authorized to permit additional importations until the price of the domestic crude no longer exceeds cost plus reasonable profit. That is to discourage profiteering.

To prevent a scramble among importers to get their crude into the country they would have created a system to provide for orderly entry of imports. They propose that the oil board provide for apportionment among importers a fair and ratable share of allowable importations, the Secretary of Treasury, in advance of importation, to issue certificates admitting the oil to entry.

The oil board would be empowered to allow additional imports for the purpose of re-export (including the furnishing in American ports for consumption of vessels in foreign commerce) "if the same may be allowed without injury to the American market." This is to prevent too heavy a burden falling upon shipping. But importations would be decreased by the board in proportion to any decrease in exports, to prevent diversion of import oil to the export trade to defeat the purpose of the bill since while last year's imports were about 87,000,000 bbls., exports totaled about 124,000,000.

Both Supply and Demand Decrease

Government Data Show First Quarter Period of Decline in Most Products. Inventory Situation Continues Favorable

By C. O. Willson

The first quarter of 1932 for the most part was a period of decreases in both supply and demand for crude oil and refined products when compared with the same period of 1931. Based on data for all oils which covers crude oil and refined products, including natural gasoline and benzol, the supply decreased 2,262,000 bbls. the first quarter compared to the first quarter of last year while the total demand decreased 7,445,000 bbls.

In the crude oil end, the domestic production as shown in the accompanying table increased 782,000 bbls. which was more than offset with a decline of 1,282,000 bbls. in imports, making a total decrease in supply for the quarter of 480,000 bbls. The indicated domestic demand for crude oil dropped more than 9,000,000 bbls. the first quarter while exports increased 364,000 bbls., so that the total demand decreased a little less than 9,000,000 bbls. or 4.2 per cent.

While the supply exceeded the indicated demand for crude the first quarter by 5,118,000 bbls., crude oil stocks at the end of March were almost 30,000,000 bbls. less than on the same date of the previous year. Crude oil inventories at the end of March were over 50,000,000 bbls. under the peak of 1929.

The government data on motor fuels for the first quarter support the contention of those who have maintained during that period that domestic consumption as well as export demand was less than the previous year. The domestic motor fuel demand as measured by refinery, natural gasoline plant and benzol plant shipments was 2,265,000 bbls. or 2.7 per cent less than the first quarter of 1931. Exports continued to decline, the decrease for the first quarter being 2,145,000 bbls. or 18.7 per cent. This resulted in a decrease of 4.6 per cent in the total demand for motor fuel, the first to be recorded for a similar period since gasoline became the principal product of crude oil.

The comparative decrease in supply was not as great as the demand. The first quarter of the year is always a period of excess gasoline production but the 10,631,000-bbl. addition to refinery storage the first three months of this year exceeded the 8,242,000 bbls. of last year. Stocks at the end of March were practically the same as last year.

In regard to crude oil runs to stills, refiners reduced their operations 3.9 per cent, made possible by a 2.7 per cent reduction in domestic crude to stills and a decline of 21.9 per cent in foreign crude oils. This decline in refinery operations was aided by a decrease of 18 per cent in natural gasoline production, the bulk of which is blended with refinery gasoline at refineries.

However, this decrease in crude oil runs and natural gasoline output from the standpoint of total motor fuel supply was partially offset by an increase of 1,623,000 bbls. in the production of cracked gasoline. While refiners as a unit have reduced their crude oil requirements they have at the same time expanded their facilities for cracking fuel oil, gas oil and other fractions of crude oil so that for the country as a whole the total supply of motor fuel the first quarter was only 2,021,000 bbls. less than the same period last year.

This continued increase in the production of cracked gasoline is reflected in the data of the accompanying table which show that the gasoline yield from crude oil at refineries increased from 46.8 to 47.8 per cent. Measured in gasoline production this 1 per cent gain in yields for the first quarter meant a gain of over 20,000 bbls. daily in gasoline production over the same period last year. Measured in crude oil, the 1 per cent increase meant that the demand for crude oil was decreased about 43,000 bbls. daily. Thus the refiners by increased facilities for distillation at high pressures and temperatures are slowly reducing the quantity of crude oil required for refinery operations.

Minor Products

Among the minor refinery products, the government data reflect the conditions that made kerosene the strongest product of the refinery list during the latter part of the quarter. Despite a substantial reduction in kerosene domestic demand and exports last year, refiners curtailed their output and reduced their inventories. This favorable situation continued over the greater part of the first quarter although exports continued to decline while the domestic demand improved. A real scarcity of the product developed in March and April, and prices in the Mid-Continent advanced until at one time they were approximately the same as gasoline.

Exports of lubricating oils improved slightly the first quarter but the domestic demand decreased 17.5 per cent so that the total demand was 12.5 per cent less than last year. Refiners curtailed their production 11 per cent so that stocks at the end of March were slightly less than the start of the year.

CRUDE OIL AND REFINERY SITUATION SUMMARIZED—FIRST QUARTER, 1932-1931

SUPPLY AND DEMAND—CRUDE OIL (Bbls.)

First quarter	Total supply	Total demand*	Excess Supply	Excess Pct.	Domestic production	Imports	Domestic demand*	Exports	Stocks March 31
1932	208,152,000	203,034,000	5,118,000	2.4	196,557,000	11,595,000	197,455,000	5,579,000	371,854,000
1931	208,632,000	212,018,000	*3,386,000	*1.5	195,775,000	12,857,000	206,803,000	5,215,000	401,570,000
Decrease, 1932	480,000	8,984,000			†782,000	1,262,000	9,348,000	†364,000	29,716,000
Decrease, 1932	.2%	4.2%			†.4%	9.8%	4.7%	†7%	7.4%

*Derived from government data for comparative purposes. Includes some California residual fuel oil. †Increase.

SUPPLY AND DEMAND—REFINERY PRODUCTS—MOTOR FUEL (Bbls.)

First quarter	Total supply	Total demand*	Excess Supply	Excess Pct.	Domestic production	Imports	Domestic demand*	Exports	Stocks March 31
1932	100,932,000	90,301,000	10,631,000	10.5	97,386,000	3,546,000	80,991,000	9,310,000	‡47,220,000
1931	102,953,000	94,711,000	8,242,000	8	99,282,000	3,671,000	83,256,000	11,455,000	‡47,387,000
Decrease, 1932	2,021,000	4,410,000			1,896,000	125,000	2,265,000	2,145,000	167,000
Decrease, 1932	1.9%	4.6%			1.9%	3.4%	2.7%	18.7%	.4%
KEROSENE									
1932	10,527,000	11,320,000	*793,000	*7.0	10,523,000	4,000	8,477,000	2,843,000	4,539,000
1931	10,409,000	10,992,000	*583,000	*5.3	10,407,000	2,000	7,559,000	3,433,000	6,300,000
Decrease, 1932	†118,000	†378,000			†116,000	†2,000	†918,000	590,000	1,761,000
Decrease, 1932	†1.1%	†3%			†1.1%	†100%	†12.1%	17.2%	28%
LUBRICATING OIL									
1932	6,028,000	6,158,000	*130,000	*2.1	6,022,000	6,000	4,327,000	1,831,000	9,355,000
1931	6,778,000	7,039,000	*261,000	*3.7	6,770,000	8,000	5,248,000	1,791,000	10,710,000
Decrease, 1932	750,000	881,000			748,000	2,000	921,000	†40,000	1,355,000
Decrease, 1932	11%	12.5%			11%	25%	17.5%	†2.2%	12.7%
PETROLEUM WAX (Lbs.)									
1932	155,736,000	141,167,000	14,569,000	9.3	139,160,000	16,576,000	84,803,000	56,364,000	195,412,000
1931	125,689,000	149,661,000	*23,972,000	*12	118,720,000	6,969,000	73,625,000	76,036,000	208,620,000
Decrease, 1932	†30,047,000	8,494,000			†20,440,000	†9,607,000	†11,178,000	19,672,000	13,208,000
Decrease, 1932	†19%	5.6%			†17.2%	†138%	†152%	25.8%	6.3%

*Excess demand. †Increase. ‡Stocks at refineries only. Note—Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments.

CRUDE OIL RUNS TO STILLS AND TOTAL ALL OILS (Bbls.)

First quarter	Total crude to stills	Domestic crude to stills	Foreign crude to stills	Nat. gasoline production	Gaso. recovery crude oil‡	Total supply all oils*	Total demand all oils*	Stocks all oils March 31
1932	201,031,000	191,272,000	9,759,000	9,688,000	47.8%	229,322,000	203,429,000	633,107,000
1931	209,172,000	196,675,000	12,497,000	11,819,000	46.8%	231,584,000	210,874,000	656,833,000
Decrease, 1932	8,141,000	5,403,000	2,738,000	2,131,000	.....	2,262,000	7,445,000	23,726,000
Decrease, 1932	3.9%	2.7%	21.9%	18%	†1%	.9%	3.5%	3.6%

*Total all oils includes crude oil, refined products, natural gasoline and benzol. †Increase. ‡Includes natural gasolines blended at refineries.
Note—All data based on Bureau of Mines' latest reports. Complete and comparable data on fuel oil and gas oil not available.

Equipment Concerns Need New Policy

Business Cannot Improve as Long as Present Practice of Selling at or Below Cost of Manufacture Is Continued

By Andrew M. Rowley

Higher prices for crude oil, gasoline and other refined oil products have enabled the oil companies to break even or make some slight profit on their operations. Present prices still are entirely too low and below the level which will permit these companies to operate on a normal basis, make much needed improvements to properties and carry on such development work as conditions warrant. But the contrast with last year, when these companies recorded losses of millions of dollars, is so great it has made many new and firm adherents to the policy that a higher price level must be reached and maintained.

Better prices for crude oil and gasoline are inevitable. They are entirely justified and the sooner they are realized the sooner the depression will be history as far as the petroleum industry is concerned. Every effort should be made by producers and refiners to keep supply a little below demand so that excess stocks may be reduced. There can be but one result to such a plan—better prices.

Must Sell at a Profit

Manufacturers of oil field supplies and equipment might well profit from the new policy gaining strength throughout the production and refining branches of the oil business. That policy, stated in the March 31 issue of The Oil and Gas Journal, is "All business in the United States must eliminate the present practice of selling its products at or below the cost of manufacture."

Refiners are getting away from the idea of procuring gallonage regardless of profits. Losses last year made them realize it is better to make a profit on a small business than to lose on a big overturn.

If sales managers of supply and equipment manufacturers adopted the same policy, balance sheets would tell a different story in many cases. Sales of equipment are being made at prices which mean an actual loss to the manufacturer.

With the greatly improved position of the production and refining branches of the oil business, thought and effort should be given now to putting the supply and equipment business on a profitable footing. Manufacturers should adopt the same policy which has been so effective in these other branches—put the business on a higher price level and maintain that price level.

Makers of quality products should set a fair price for those products, a price which will net a profit, and they should adhere strictly to that price regardless of what tactics are employed by their competitors. Sales managers should instruct salesmen to make one price and stick to that price.

Oil company executives can help in the recovery of this most important branch of the oil business—a branch which has borne the load so many times in the past and which has enabled producers and refiners to operate and develop properties through credits and other help. Purchasing agents should be told to consider products on their merits and not let price be the one and only factor determining where an order is placed.

One Executive Has Right Idea

At least one oil company president has adopted this policy. His experience is typical of what is occurring constantly throughout the business. His company makes a national contract each year for its automobile tires. Recently salesmen from 14 different tire manufacturers visited this company to solicit the business. According to what this president told me, every succeeding salesman had a lower price, a larger discount or something more to offer than did the one preceding. Finally when the fourteenth salesman was heard and his bid received, the oil company was about to get its tires for practically nothing.

Then the purchasing agent informed the president of the company one tire manufacturer had withdrawn its bid. The head of the tire company had wired the district manager cancelling the bid submitted and instructing that district manager no future bids would be valid which did not permit the tire company to make a profit on the business.

When informed of this wire, the president of the oil company called in the district manager of the tire company and congratulated him on the policy of his company. The oil man wired the president of the tire company congratulating him and stating that policy was absolutely necessary if business in general in the United States was to improve. He also stated the tire company would receive the same share of the oil company's tire business that it had received the previous year and at a price which would give the tire company a profit, even though that company's price was considerably above bids of other tire companies.

Salesman Lost $200 on Order

Another example. Quite recently an oil company called for bids on a certain purchase it desired to make. Two or three firms submitted bids of $2,700 which really amounted to selling the product at cost of manufacture. One firm submitted a bid of $1,700, or just $1,000 less than the others, which was some reduction on a $2,700 job. The purchasing agent decided to accept the low bid and he made out a purchase order to the $1,700 bidder, signed it and sent it to the mailing department to go out. Just as he was leaving his office to go home for the day, the purchasing agent received a telephone call from the low bidder who said he wanted to cut his bid $200, making it $1,500 instead of $1,700. The purchasing agent thanked him, went to the mailing department, took back the purchase order for $1,700 and wrote out a new one for $1,500. The telephone call, inspired probably by a fear of losing the business, cost the low bidder $200.

The turn has been made in the production and refining branches of the oil business. The welfare of the whole industry depends largely upon prosperity for every branch. The supply and equipment branch is a most important factor and every oil man should support efforts to get that branch back into the black.

Much depends on oil company executives and purchasing agents. As long as price is the one and only point considered, the equipment business as a whole will suffer. Quality and service are stressed by refiners. Why not consider these to a greater extent in purchasing equipment?

Manufacturers Have Been to Blame

On their part, manufacturers have been derelict in their duties to their companies and stockholders by permitting salesmen to solicit business at prices which could not possibly represent any profit. I know of one pipe line contract let at a price which would not pay the day labor on the job.

A higher price level must be reached in all lines of business. Companies which do not make any money, cannot spend any. Purchasing agents can do their part in helping in this general recovery of business. They know what a reasonable and fair price is for a standard product made by a known manufacturer. And they know when a less price is asked, the concern offering the price is losing money. The oil company reports for last year show the result of such a policy.

One policy should be adopted by every business concern in the country. That is "Don't sell any product at a price which does not represent a profit." Firms selling at or below cost of manufacture cannot long remain in business. Those in charge of buying should realize that and give the business to companies which show enough business judgment to set a price which will permit that company to keep its factory running and its men employed at a living salary.

Marketing Natural Gasoline and the New System of Grading

Manufacturers Do Not Need to Offer Apologies for Their Product

By J. A. La Fortune
Vice President, Warren Petroleum Co.*

About 17 years ago, the natural gasoline industry began emerging from what might be termed the "tea-kettle" stage of manufacturing to a bigger and more expansive division of the petroleum industry. Year after year, far reaching changes took place in this rapidly growing business, until today this new industry represents in production of natural gasoline approximately one-tenth of the total motor fuel produced in these United States.

After two years of low prices and demoralization, we have learned our lesson and are confronted with the absolute necessity of saving a tremendous investment so that all will not be lost in the change that has taken place. We know we have the gas reserves, the plants and the equipment necessary to manufacture a useful product, but our big task is similar to that which must be faced by many other basic industries, namely, the marketing of a product on a profitable basis.

As you will note, I am not endeavoring to portray a beautiful picture, much as I would enjoy doing so, for such would only be ridiculous, the facts not justifying such a position. Our industry is in a precarious position and it is going to take initiative, co-operation and a departure from our old methods to sell our product at a profit. During the past three years, our production has declined 19 per cent, our finished product is superior in quality to that of former years but in spite of these two factors, the demand has diminished to the point where it is difficult to keep the price above the cost of production. In analyzing this inertia on the part of former buyers for natural gasoline, we find that there are three reasons responsible, namely, refinery gas recovery plants; secondly, decreased export business and thirdly, the cracking process. Any one of these causes is sufficient in itself to hurt a business similar to ours, but when all three are combined, then indeed there is real demand for constructive thinking.

Conditions Changing

Since some of our largest manufacturers are likewise refiners and exporters, the serious plight facing the natural gasoline manufacturers was quite apparent to them some time ago and immediate steps were taken to protect their investments. One of the largest manufacturers has, during the past two years, increased his refineries, marketing outlets and means of gasoline transportation, while others are stabilizing all or the major portion of their production to offset the decrease in demand.

In times of financial stress the old rules of business conduct no longer hold good and we are governed by emergency and makeshift policies which get us nowhere and generally end in disaster. In our business, I am confident that many of the things with which we have had to contend over the past year will pass with a return to normal thinking and acting on the part of our customers. In carrying out a liquidation policy of "sell everything and buy nothing," many refiners have overlooked the opportunities for immediate profit and permanent benefit, offered them through the purchase of our products at prices which we hope will never again be duplicated. Under normal conditions our customers are quick to grasp these opportunities and it is due to this fact that we are certain to recover at least a part of the lost ground just as soon as normalcy returns to the oil business generally.

Enlarge Markets

This of course does not mean that we should fold our hands and wait until all of our former customers return and knock at our doors seeking our products as they have done many times in the past. It is our business to expedite their return as quickly as possible and what is more important, go out and find new customers so that we will have a demand for our gasolines which would make for a sellers' rather than a buyers' market. The happenings of the past year have exposed our weaknesses and if we correct these it is entirely possible that we can look back on the past year as a lesson period which enabled us to place our business on a firmer and more profitable foundation than ever before.

It has been said that the best method to establish a permanent business is to determine the market and then adapt the manufacturing operations in line with the available outlets. We have had to reverse this desirable procedure. Our products literally have been forced upon us and we have had little control over the production of the raw material. We must be prepared to go and find a market for our gasolines wherever they are manufactured and in whatever quanities. We must also provide for the fact that although the production in general is uniform throughout the year, the consumption is substantially greater in the summer than in the winter months. I believe, we are in the position of having a finished product placed in our hands without regard to varying marketing conditions and then told to get rid of it on a profitable basis. Some have refused to face this basic fact in regard to the supply in the past, and many of our troubles have been due to that attitude. As an industry we have over 1,000,000,000 gallons of natural gasoline to dispose of over the remainder of the year and it is our job to see that it is sold at prices which will yield a profit.

Premium Products

Knowing the quantity that we have to sell, the next thing to determine is the properties of our products.

What, if anything, do we have that has merit from the standpoint of the consumer? If our products are worthless then we might as well lock our plant gates permanently and close our offices, for there never was an industry able to live without customer acceptance of its products.

Unfortunately, we still have in the oil business and even in our own branch, those who are constantly apologizing for natural gasoline. They have never been educated away from the thought that our products whether used direct or as blending material was a cheap substitute for refinery gasoline. This attitude is one of the reasons it has been cheap in recent months.

It is not necessary to discuss here what we now know about the qualities of natural gasoline. The research work of this association as headed by Dr. G. G. Brown of the University of Michigan has served to dissipate the former beliefs regarding the undesirable properties of natural gasoline. This work has been supplemented by that carried on by the research and development departments of manufacturers, so that we now know more about the chemical properties of our products and their possible uses in other industries than any other manufacturing branch of the oil industry.

We have technical data showing that raw natural gasoline contains the most desirable properties required by the modern engine as motor fuel. In addition we have the lighter fractions such as propane and butane for which there is a market as special fuels.

Volatility and Antiknock

In regard to motor fuel, every development of the past two years has tended to make the premium position of our products more secure. The modern engine requires a volatile motor fuel and one that will not knock with the higher compression ratios.

Why then should we apologize for natural gasoline and permit it to be sold on a basis which indicates that we consider it inferior to straight refinery products? The answer is that we have failed to bring before the consuming markets what we know to be true. We have a potential market for our products which is 10 times as great as our possible production. All owners of motor vehicles could be educated to know the superior qualities of natural gasoline and if we could bring this message to only a small fraction of these consumers, our problem would be solved.

Enlarge Winter Market

It seems to me then that our immediate problem is to widen the sale of natural gasoline either as blending material or as a finished motor fuel. If you will check prices over the past few years, you will find that during the months of maximum gasoline consumption we have had a demand in line with the supply and usually we have been able to maintain favorable prices in relation to refinery quotations. This has been due to the fact that refiners require more natural gasoline to blend with their stored gasoline liquidation during the summer months.

The winter months, however, have invariably brought reduced outlets and in the scramble to get rid of current production we have too often ruined our own market and that of our customers. I believe that this situation could be remedied. We know that we have a product which is particularly adaptable for use as motor fuel during the winter months. We can furnish a finished motor fuel which will give superior performance to car owners from the standpoint of ease in starting, acceleration and antiknock properties. Heavy blends with refinery products will give the same performance.

New Specifications

In approaching that part of my paper as to the new grading system in its relation to the marketing of natural gasoline, I will abstain from technicalities because for several years you have heard the results step by step of the research carried on by this association which finally led to the adoption of the grading system upon which natural gasoline is now sold. I sometimes wonder if all this splendid work carried on under the direction of the association has not proved to be a boomerang. The object of all the research was to show the refiner how to make a better motor fuel and to prove to him conclusively the necessity of front end voltaility, high knock rating, etc., which logically should be secured in the finished fuel by the use of natural gasoline. To this end we discarded our old grading system to endure like spartans all the discomforts that such a departure necessitated in rearrangements of contracts for gas and gasoline and other readjustments. We applied a descriptive yardstick by which the refiner could order that grade which best suited his needs. Up in the attic and into the trunk with old army clothes and letters tied with lavender ribbon went good old Double A and Double B. Most of us to whom the sale of natural gasoline has been entrusted are not technically enducated but our hearts were in our jobs just the same. As the research program progressed, we absorbed as much as our nontechnical brains would permit so that when the change in grading came, we knew enough about vapor pressure and evaporation points, knock ratings, etc., to carry the good work to the firing line. What has happened? Our association, our manufacturers, our marketers have done such a good job—such an excellent job of selling the value of natural gasoline to the refiner that in a short period of time almost every refiner has his own gasoline plant making some of the new grades we have offered him. That's the boomerang!

Recovery Requirement

There is no doubt of the sincerity of the gasoline manufacturers in their attempt to help the refiner choose the right kind of natural gasoline by this regrading nor do I here attempt to criticize those of our group who originated the new grades after months and months of work. But the fact remains that for the most part we have simply added two specifications to our old grades, namely vapor pressure and amount evaporated at 140° F. The great proportion of grade 26-70 falls within the specifications of old AA, especially as to recovery. It was intended that the price of grade 26-70 would be the price of grade AA and on the day of transition that is exactly what happened. It was not long, however, before the demand for a guaranteed recovery of 90 per cent made a step-child out of that small portion of grade 26-70 which did not meet that recovery with the result that on a thin market it had to be sold at a discount. This discounted price carried in our price publications set the price for hundreds of contracts. Such a fuss was made about this manifestly unfair situation that one publication was on the verge of carrying two prices for the 26-70—one above 90 per cent and one below. This would only have complicated matters more—and to date the only progress towards the solution of this problem (if it can be called "progress") is a more or less tacit understanding that such discounted prices will not be mentioned. It is contended by many that the only permanent solution is the inclusion of recovery specifications in all grades of 26 or lower vapor pressure.

There is no doubt that the new grading has made the buyer vapor pressure conscious. The amount evaporated at 140° F. is as yet of secondary importance to most buyers. To many of the smaller buyers the designation of vapor pressure and evaporation in the terminology of our grading is evidently not yet clear. Many inquiries are still reaching sales offices asking for prices on grade 26-70 with maximum of 20 or 22 pounds vapor pressure. This lack of understanding as to the designation of grades by the indicated numerals will of course be corrected in time through the efforts of the sellers and as the educational work of this association reaches further afield.

*Annual convention, Natural Gasoline Association of America, Tulsa, May 17-19.

Properties of Products Made From Refinery Vapor Recovery System

Natural Gasoline Manufacturer Is in Position to Compete

By Emby Kaye
Skelly Oil Co.*

It has been said that too much efficiency put the oil business in the doldrums. Whether that is literally true or not, the efficient engineering and practice developed by the natural gasoline and associated industries in the half decade before 1930 and made available to the refining industry in the past two years have been important contributors to the continuing economic chaos in which the natural gasoline industry has found itself since early 1930.

While there appear to be no available statistics on the production of vapor recovery gasoline in refineries, we know it has been increasing by leaps and bounds. As cracking has been extended and recovery systems improved and enlarged, the yield of gasoline in the refinery from this source has moved up from a small fraction of a per cent to 5 or 6 per cent in many refineries. I am familiar with many a plant that produces 3 or 4 gallons of vapor recovery gasoline for every barrel of crude processed, but on the average it may be conservatively figured that the yield is about 2 gallons per barrel of crude throughput. Thus you have this picture, that while the natural gasoline output has been reduced from close to 7,000,000 gallons in 1930 to a scarce 4,500,000 gallons, the production of vapor recovery gasoline has in a like period about doubled, and today approaches the staggering figure of 5,000,000 gallons.

Compression Type

This "push" has been accomplished chiefly by vapor recovery systems of the conventional absorption type. A few of the earlier plants were of the compression type, but the handling of highly corrosive gases caused the former to be favored since, except for tank and tail vapors from the crude battery, the bulk of the gas could be handled under still pressure through the entire system. The composite gas was otherwise quite suited to treatment by compression.

Just two years ago one small but progressive refinery in Arkansas City, Kans., built a compression direct rectification plant which thoroughly vindicated the engineers who designed and the management which installed the equipment. Early this year another such recovery plant was built in a refinery at Duncan, Okla. This plant is said to be operating like a charm. It is reported that the Midwest gasoline plant in Wyoming has been converted to this type of operation and that the Gulf interests built such a compression plant in East Texas.

I understand that the initial cost of a compression direct rectification plant is approximately the same as the cost of an absorption plant, but, on the other hand, the salvage value of the former is by far the greater since the tower and power units represent the bulk of the investment. Operating costs are decidedly less.

With only a stabilizer as a gasoline production unit, the engineer can take care of the plant by himself, whereas with the multiplicity of operations in the absorption plant other operators are required. Data deduced from the operating plants of both characters develop the interesting facts that the absorption unit requires 40 per cent more fuel for pumping, stripping, etc., and 50 per cent more water for cooling, steam, etc., than the compression unit.

Easier to Operate

Needless apprehension is felt by some people about the talent required for the operation of one of these modern compression plants. As a matter of fact, the plant is easier to operate than an absorption unit, and the same or higher efficiencies may be obtained. Instead of having to watch oil and gas temperatures, oil rate, still top and bottom temperatures, and the condition of the lean oil, the operator need only watch the pressure of the column and the temperature of the reflux. While, in the case of the absorption plant, the laboratory must keep a check on the operation by analyses of the lean oil, rich gas, dry gas, stabilizer vent gas, bottom product, etc., in the compression plant, the chemist need only watch the residue gas and finished product. There is only one point where gasoline may get by the plant, viz., through the overhead of the stabilizer; and the efficiency of this column is greater than in the gasoline stabilizer because of the greater differential in vapor pressure of the tops and bottoms. A better job may be accomplished with less trays and with less reflux.

I am repeating what I said two years ago when I say that the type of plant I have been discussing represents an advance in the art of gasoline recovery. The refiner will be able further to cut his production costs (in new plants) for manufacturing his volatility.

Effective Volatility

I am not convinced that the refiner as a class fully appreciates the difference between volatility and what our technologists have termed effective volatility (if I may borrow the term from one of our associates who has more or less appropriated it for his exclusive use). This statement is based not only upon a fairly intimate, if limited, contact with some representative minds in the refining group, but more or less upon analyses of gasoline samples picked up at random throughout the Mid-Continent territory.

These samples show too low initials and 5 per cent points when the gasoline is fresh, and hopelessly high 10 per cent points after the gasoline has been in storage over a period of months, as it will be in ever so many bulk stations. What refiner has not observed this in the case of his blue and Ethyl gasolines, the gasolines which experience the lowest turnover? What refiners have not had their attention called to the subnormal octane number of their Ethyl Gasolines in outlying bulk storage plants? Beyond peradventure of doubt, the octane number of the original stock of these gasolines was built by an excess of low boiling constituents, unstable constituents. Thus, after several months of exposure to storage, the octane number was diminished, the front-end volatility impaired, and, at the same time, an excessive loss in storage was experienced.

After Weathering

Herewith are bona fide samples of apparently good blue gasolines after weathering in bulk storage distribution plants:

Grav.	I.B.P.	5%	10%	% evap. at 167°	Recovery
57.7	120	157	174	9	98.2
58.3	100	135	156	14½	98.0
57.1	108	150	170	10	98.0
59.0	110	140	160	13	98.0

Samples of Ethyl Gasoline showed the same general characteristics. We have data on 76 samples collected in a given period, of which 38 were all right as to octane rating. Sixteen samples showed one-fourth cc. tetraethyl lead below standard, 19 between one-fourth and one-half cc., 5 between one-half and one cc., 3 between 1 and 1½ cc., and 1 showed a deficiency of 2 cc.

With perhaps one exception, the studied analysis of this investigation indicated no criminal dilution, but, as suggested, it showed the loss of the volatile high-octane fractions. From every consideration of quality and performance, it would appear that the refiner would profit in the long run by more effectively controlling his quality, in this case volatility.

Average refinery gases contain substantial volumes of propane[1] and butane[2]—in fact, more propane than average casinghead gas, and approximately the same volumes of butane[3]. One may discover in many a refinery the same tendency to

SETTLED CASINGHEAD GAS

	Seminole, Okla.		Burbank, Okla.	
	Vol. %	G.P.M.	Vol. %	G.P.M.
Methane, ethane, air	55.36	....	64.6	.....
Propane	20.45	5.5+	19.3	5.21+
Butane	15.57	4.9+	11.4	3.6+
Pentane plus	8.32	3.26+	4.7	1.74+

	Refinery vapor gas, oil and topped crude unit		Refinery vapor naphtha reforming	
	Vol. %	G.P.M.	Vol. %	G.P.M.
Methane and lighter	38.8	....	51.8	.....
Ethylene	13.8	....	10.9	....
Ethane	7.2	....	.9	....
Propane and propylene	20.0	5.4+	16.1	4.35+
Butane and butylene	12.3	4.0+	10.7	5.45+
Pentanes	5.7	2.05+	5.8	2.09+
Hexanes and heavier	2.2	.9+	3.8	1.56+

"have and to hold" the largest volume of butane which can be extracted in the recovery plant in order to "make volatility" and reduce the consumption of natural gasoline. It is not uncommon for refiners to make a 30-32 pound product, and when you tie in with this the poor propane elimination which often occurs, you can see what I am talking about. It is the old curse with which natural gasoline manufacturers were until lately afflicted, namely, volume of production and yield. We wanted to make the most gasoline rather than the best. And now, when our production is being curbed by proration and superstabilization into direct motor fuels or their equivalents, the refiner too should give thought to curbing his own vapor recovery production.

Approaching Sanity

I believe the refiner as a class is fast approaching sanity in his approach to the problems related to volatility. He is realizing that in substituting a vapor recovery gasoline of excessive vapor pressure for natural gasoline of controlled volatility, he is not only diminishing the quality of his products and creating the conditions for excessive handling losses, but, by creating an artificial surplus of natural gasolines, debasing the value of refined products generally by making available low vapor pressure naturals at less-than-cost prices.

The progressive and intelligent refiner is doing more than a good job of controlling the vapor pressure of his vapor recovery gasoline. He is removing the propane from his straightrun gasoline, debutanizing his pressure distillate for the same reason, and then eliminating the propane and excess butane in his recovery system. The obvious increase in refinery yield by the substitution of about 4 per cent butane for every per cent of propane has been too widely discussed to need further treatment here[4]. What I have tried to emphasize is that the refiner should at certain times go further; he should stabilize his own natural gasoline substitute according to seasonal requirements, and use the more stable grades of natural gasoline in so far as freight rates and the economics permit, by refinery or bulk plant blending, to the end that, on the one hand, the industry furnish the best fuels which can be produced with today's art and for today's automotive requirements, and, on the other, that the vapor recovery systems in our refineries be actually, as the name implies, instrumentalities for saving, and not the means for wrecking the natural gasoline industry and demoralizing the refining industry.

The working out of such a program presumes a certain unselfish approach, and admittedly this is difficult. It is doubly difficult to go out and sell this idea to an independent refiner, however sound our position may be, if the large integrated companies are not doing this very thing. Is it possible that selfishness in the departments of various of our larger companies is permitted to stand in the way of the best and most profitable utilization of their products?

The refiner should and must realize—and I believe he is coming to this view rapidly—that the interests of the natural gasoline and refining industries are interdependent and that for fundamental reasons, discussed here and elsewhere, natural gasolines must find a market with the aid and abettance of the refiner if the best interests of both will be served.

*Before Natural Gasoline Association, Tulsa, May, 1932.

[1]Including propylene.
[2]Including butylene.
[3]Analyses of refinery vapor and settled casinghead gas.
[4]If all gasoline on the market were built propane-free, but with present vapor pressure specifications, at least 1,250,000 gallons additional natural gasoline could be utilized.

WANT GASOLINE PRICES FIXED BY COMMISSION

LOS ANGELES, Calif., May 16.—Proposed legislation would make the retailing of gasoline in California a public utility function, regulated by the State Railroad Commission. Under this measure, sponsored by C. D. Eddington, a California refiner, and framed by Attorney E. D. Reiter, it would be impossible to establish any new service stations without a certificate of public necessity and convenience, putting a stop to further overcrowding of the market throughout the State.

Existing stations would not be put out of business but they would be required to sell only at the prices fixed by the State Railroad Commission, according to Attorney Reiter. This feature would give protection against further cutthroat competition to present dealers.

INQUIRY ASKED IN MICHIGAN

LANSING, Mich., May 16.—A resolution introduced in the Michigan House of Representatives has for its object the creation of a committee of six members, three to be appointed by the president of the senate, "to investigate the situation with reference to the price of petroleum products within the State of Michigan and to report as to their findings to the governor and the next legislature not later than February 15, 1933." The resolution asserts that "a recent increase in the price of gasoline has been made in the face of reductions in all other commodities," that this increase "was put into effect at the same time by practically all the leading gasoline distributors, thus indicating an agreement" and that "gasoline is not being sold at a uniform rate as between the various communities and cities within the State."

Back-Pressure Tests Point Way to Better Gas-Well Operation

McGowen and Rawlins Explain Results Of Research to Natural Gas Convention

By Thomas F. Smiley

"Conservation of Gas in Completion of Well Drilling and Gas Well Deliveries" was the subject of an interesting report and equally interesting discussion on the closing day of the annual convention of the Natural Gas Department, American Gas Association, held in Tulsa Monday, Tuesday and Wednesday of last week. The report, prepared by N. C. McGowen, United Gas Public Service Co., Houston, Tex., was read by John S. Ivy, superintendent of the land and geological department of the same company. The more technical phases of the subject were discussed by E. L. Rawlins, gas engineer, U. S. Bureau of Mines, Bartlesville, Okla. The research work done in this field by Mr. Rawlins and its practical value to the industry were subjects of commendatory comment.

The Crystal ballroom of the Mayo Hotel, in which the sessions of the convention were held, was well filled Wednesday afternoon when M. M. Kinley, Tulsa, exhibited motion pictures showing Rumania's famous burning well which for three years baffled all efforts to extinguish it and Mr. Kinley's successful completion of the job.

The convention closed with the "Question Box and Discussion," an annual feature conducted by J. D. Creveling, New York, head of the natural gas department of Henry L. Doherty & Co. Questions of technical interest were answered by experts in their respective fields.

Selection of the convention city for 1933 is in the hands of the Time and Place Committee, which will make its recommendation at the American Gas Association convention in Atlantic City, N. J., next October. Invitations have been received from Cincinnati, Ohio; Dallas, Tex.; El Paso, Tex.; Omaha, Neb.; St. Louis, Mo., and Wichita, Kans.

Choice of a chairman and vice chairman of the Natural Gas Department will be made also at the Atlantic City meeting. In conformity with the established practice it is expected that L. K. Langdon, Union Gas & Electric Co., Cincinnati, vice chairman, will take the place of the retiring chairman, Major T. J. Strickler, Kansas City Gas Co., Kansas City, Mo. Frank L. Chase, vice president of the Lone Star Gas Co., Dallas, is mentioned as a probable successor to Mr. Langdon as vice chairman.

Members of Committee

Mr. McGowen, who prepared the report on gas conservation, is chairman of the subcommittee on Gas Well Deliveries appointed by H. C. Cooper, chairman of the Main Technical and Research Committee. The members of this subcommittee besides Mr. McGowen and Mr. Rawlins are: M. A. Abernathy, United Gas Public Service Co., Houston; J. W. Bartlett, Dallas; H. S. Bean, U. S. Bureau of Standards, Washington, D. C.; H. R. Dickerson, Arkansas Natural Gas Corp., Shreveport, La.; J. R. Hatfield, Indian Territory Illuminating Oil Co., Bartlesville; R. W. Hendee, Oklahoma Natural Gas Corp., Tulsa; William Moeller, Jr., Southern California Gas Co., Los Angeles; Berney Oakland, Southern Carbon Co., Monroe, La.; H. C. Otis, Southern States Co., Shreveport; F. P. Shayes, Houston Pipe Line Co., Houston; Don A. Siller, Lone Star Gas Co., Dallas; Ross M. Stuntz, Cities Service Gas Co., Bartlesville.

Mr. McGowen's report follows:

"The primary object of the committee was to determine whether or not the consideration of gas well capacities should be changed from that of open flow to that of delivery capacity. This was felt desirable for the following reasons:

"1. That the gauging of wells by the open flow method as required by many state commissions was felt to be so wasteful that it warranted the development of a method that would eliminate this factor and at the same time furnish a better control in limiting production.

"2. It is also felt that open flow capacity data did not furnish the operator with adequate information relative to the ability of his wells to deliver gas into his system, and

"3. That the recording of large open flow capacities most often create in the lay mind the erroneous impression that tremendous gas reserves are available.

Actual Measurement of Deliveries

"With these in mind, the committee has concentrated primarily on the actual measurement of deliveries from gas wells at different back pressures and the use of these data as a basis to define the capacities of the wells for proration and regulation purposes. The program of this study, as outlined at a special committee meeting, has included the following objectives:

"1. A large number of gas wells have been tested with the back pressure method. Selections of gas wells were made so that the data are applicable to different parts of the country, and apply to wells under different operating conditions.

"2. A careful study has been made of the consistency of the data as relates to a straight-line relationship when the rates of delivery are plotted on logarithmic paper against the respective differences of the squares of the formation and back pressures.

"3. Methods of observing pressures and measuring rates of deliveries have been studied so that definite recommendations can be made to satisfy the requirements of a gas well test.

"4. Methods of testing, computing data and analyzing results have been greatly simplified.

"5. Special experimental tests have been conducted to serve as a basic background for analyzing data from actual gas wells.

"6. Studies are now being made of the agreement or disagreement, as the case might be, of the relations plotted from data observed at different times in the lives of individual wells.

"To date, a total of 656 tests have been made on 489 gas wells located in Louisiana, Ohio, Oklahoma, Texas Panhandle, and the Rocky Mountain area.

"On 584 of these tests, 89 per cent, it was possible, for all practical purposes, to draw on logarithmic paper a straight line relationship between the rates of delivery from the wells and the respective differences of the squares of the formation and back pressures at the sand. On 31 tests, 4.7 per cent, the points as calculated from the gas well test data were so located that it was questionable as how to draw a relationship. On 36 tests, 5.5 per cent, relationships as established had a distinct curvature. The results of five tests, 0.8 per cent, were of no value at all.

More Study Planned

"It was thought at one time it would be possible to establish from one back pressure test a definite relationship for a well and that this relationship would be applicable for all practical purposes throughout the life of that well. However, from tests made so far to study this phase of the problem, such relationships are not generally applicable; although no changes have been found in several wells after a period of time, others actually do change their flowing characteristics. This will receive more study this summer when the last of the contemplated field tests on the problem will be made.

"One main object that was stressed when work was initiated on this problem was to study carefully the correctness of using the back pressure method of gauging capacities of gas wells under any conditions of pressure, even those of open flow. The results so far indicate that it is possible to use this method to gauge capacities, especially so when the effects of fluids and other factors are interpreted correctly. The tests, therefore, serve a two-fold purpose; they give a figure that can be used to describe the gas well capacity, and they also stress the availability of the gas under normal producing pressures.

"The present status of the gas well gauging problem is a representative series of back pressure tests on gas wells located in different parts of the country which are being studied with a background of a series of special experimental tests on sand. The only remaining field work now contemplated are additional tests on special selected wells from which to study the changes during the producing lives of the wells. It is hoped that a careful interpretation of all of these data will permit several general recommendations regarding production from gas wells which now are strictly special problems on individual wells; in addition, many valuable points will be emphasized for individual wells.

"Final conclusions are not yet possible and can be made only after an exhaustive study of the data. However, a discussion of what data have been obtained to date should be interesting and valuable at this time.

"The chairman of your committee wishes to express his appreciation of the co-operation of all members of the committee and especially Mr. Rawlins and his co-workers of the Bureau of Mines."

Mr. Rawlins' Discussion

In his discussion of the foregoing report Mr. Rawlins said:

"Mr. McGowen has pointed out the present status of the co-operative work between the Gas Association and the Bureau of Mines on the problem of gauging gas well deliveries. It may be well to stress some of the points mentioned by Mr. McGowen and also discuss a few of the technical side lines to the general problem.

"1. The basic background for a so-called back pressure test of a gas well is the fact that the flow from the sand into the well bore and thence up through the producing string is controlled in part by differential pressures; first, there is a differential pressure in the sand itself which controls the flow of gas into the well bore and there then is a pressure drop in the producing string which controls the vertical flow to the surface of the ground. This same principal is true for meters and for pipe lines. In the orifice meter, we have the rate of flow proportional to the square root of differential pressure multiplied by the static pressure. In the flow of gas through pipe lines, we have the rate of flow proportional to square root of the differential pressure multiplied by the average static pressure or to the square root of the difference of the squares of the inlet and outlet pressures.

"This same idea has been applied to gas sands. Tests are made on gas wells and the rates of flow from the wells at each of several different back pressures are measured. The problem is then divided into its two parts. First, knowing the rates of flow of gas and the pressures measured at the well head, calculations are made of the pressures at the face of the sand. Each rate of flow represents the amount of gas that can flow through the sand under a differential pressure equal to the difference between the shut-in pressure in the sand and each of these pressures at the sand face.

Straight Line Obtained

"It has been found, as pointed out by Mr. McGowen, that if each of these rates of flow is plotted on logarithmic paper against the respective difference of the squares of the formation and back pressures at the sand face, a straight line is obtained. This is simply an easy way of representing graphically what is occurring in a gas well.

"It is not necessary for ordinary purposes to use any complicated formula for solution of gas well problems. All of the work can be done graphically. Since the straight line relationship appears throughout a wide range of conditions, the straight line based on high back pressure is extended and the rate of flow corresponding to the square of the formation pressure is read from the chart. This is what we term absolute open flow, or the flow which could be obtained from the sand if the total back pressure could be reduced to that of atmosphere. The actual open flow will depend upon the back pressure created by the producing string in the well.

"2. The relationship where the plot is a straight line can be represented by the equation $Q = C (P_f^2 - P_s^2)$ or the exponent of $P_f^2 - P_s^2$ is unity. This condition in practice has been found to be rare.

"3. Data for each gas well tested, can be arranged in a satisfactory and compact manner on one separate sheet of paper. First are shown the general information needed for proper interpretation of the data; well name and number, depth and thickness of the producing sand, size of producing string, producing formation, shut-in rock pressure, and gravity of the gas. The pressure and measurement data observed during the back pressure test are given next. The results obtained when the pressures observed at the well head are corrected to those that actually exist at the bottom of the hole then are shown. Last, the calculated rates of flow corresponding to the respective values of $P_f^2 - P_s^2$, or the plotting data, are listed. Tables are so prepared that the calculations become more or less routine.

Applicability Emphasized

"4. Plots of a group of wells where data were obtained through a wide range of pressure conditions emphasize the applicability of the straight line relationship through this wide range.

"5. With reference to the measurement of pressures in a back pressure test of a gas well it is very important to determine these pressures as accurately as possible. In many cases, it is desirable to test a gas well by measuring the different rates of flow through an orifice meter installation. In such cases, the maximum rates of flow possible might be relatively low compared to the actual delivery capacities of the well, which would necessitate the measurement of high back pressures. The differential pressure ($P_f - P_s$) therefore is small and a comparatively small error in either P_f or P_s is magnified when the value of $P_f^2 - P_s^2$ is computed. It is believed that with 'extra special' precautions, spring gauges are applicable to pressure measurements. However, the gauges should be in good working order, should be calibrated frequently, should

Even if straight-run gasoline was good it wouldn't pay to skim dollar crude to make it because you can get twice the yield by Dubbs cracking

But straight-run isn't good Automobile engines don't like it Most motorists won't buy it Most refiners can't sell it

Automobile engines *do* like Dubbs cracked gasoline Motorists *will* buy it Dubbs refiners never yet have made enough to go round

Dubbs refiners are sitting pretty

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

be handled carefully, and should be protected as much as possible from the sun when being used on gas wells.

"6. A method of determining the actual open flow of a gas well through the producing string that is in it from back pressure data has been developed. In one particular case the absolute open flow, or the capacity of the sand with this particular diameter of hole and sand penetration to deliver gas against atmospheric pressure, was 121,000,000 feet per 24 hours; whereas, the actual open flow thorugh a string of 6⅝-inch casing was 74,000,000 feet per 24 hours. The calculation of such actual open flows from the back pressure data can be made graphically on the same sheet with the original plot of the back pressure data.

Same Method Applied

"7. This same method can be applied to determine the open flow that would be obtainable through any size of producing string, based upon back pressure data. For one particular well, the calculated comparative rates of flow are:

	M. ft. per 24 hrs.
Absolute open flow	81,000
Through 8¼-inch	74,000
Through 6⅝-inch	62,000
Through 6¼-inch	58,000
Through 5 3-16-inch	44,000
Through 4-inch	26,000
Through 3½-inch	20,500
Through 3-inch	14,500
Through 2½-inch	8,900
Through 2-inch	5,300

"8. Gas wells differ as to their flowing characteristics when conducting back pressure tests on them. Some are 'quick settling' and some are 'slow settling' with others between these two conditions. Care should be used to obtain settled flows, or else realize the relationship between an unsettled and a settled flow before making any comprehensive deductions regarding delivery capacities.

"9. 'Shooting' a gas well can have several effects on it. In one particular case the effect evidently was beneficial. The well was first tested January 4, 1926. It was shot January 20, 1928, and was not produced until January 31, 1928. The delivery capacity at the high back pressures increased appreciably. The well was tested again August 12, 1929, at which time the delivery capacity at different values of $P_t^2 - P_s^2$ had settled back closer to that of the initial test. A final test conducted May 6, 1930, indicated that although the rock pressure in 1930 compared to that in 1926 was much lower, the delivery capacity, at, for example, a value of $P_t^2 - P_s^2$ of 5,000 had increased from about 425,000 to about 1,700,000 feet per 24 hours. This shows how a study can be made of the results following certain conditions in gas well delivery capacities.

Tubing Gas Wells

"10. There has been some discussion lately about tubing gas wells making appreciable quantities of water. In several cases, the relationships between Q and $P_t^2 - P_s^2$ were consistent after tubing where before tubing there was little consistency. The delivery capacities at the same values of $P_t^2 - P_s^2$ were increased due to the tubing, which indicates a condition beneficial to the wells.

"11. Some tests have been conducted on gas wells making water, and the deductions of these tests checked experimentally, which show that for an unchanging head of water in the well bore the effect of water coming through the sand with the water decreases the gas availability; the change being shown by the coefficient C in the general equation form

$$Q = C\,(P_t^2 - P_s^2)^n$$

the exponent n remaining constant. In other words, the straight line representing the relationship between Q and $P_t^2 - P_s^2$ when water is coming into the well bore is parallel to that between Q and $P_t^2 - P_s^2$ when the water has been cleaned out of the sand immediately surrounding the well bore and the water effect does not come into the question.

"A more intensive study on influence of fluids on gas well capacity is now being made. Wells under many conditions of operation containing water, gasoline, etc., are being selected and series of tests are being made on them from time to time. It is hoped that these studies will give much information on the effect of fluids on back pressure tests themselves and also upon the operation of the wells.

Flow Through Porous Media

"12. In addition to the many back pressure tests on actual gas wells, some work of an experimental nature on the flow of natural gas through porous media also has been carried on. In a set up of equipment near Amarillo, Tex., gas was taken from a gas well and allowed to flow through a system of piping and a flow tube filled with porous media. The system consisted of a throttling valve, dryer, flow tube, and prover runs, several valves for regulating purposes, and connections for measuring pressures and temperatures. The gas was measured with specially calibrated orifices in the prover runs.

"The flow tubes consisted essentially of sections of pipe with companion flanges at both ends of each section. The sand was held in place by screen-covered perforated plates at each end of the tubes. The tubes were made up in four different sizes; namely, 3, 2½, 2 and 1½ inches in diameter by approximately 4 feet long. Openings spaced 2 feet 4 inches apart in the walls of the tubes were used for pressure connections and to insert thermocouples for temperature measurement. Two sets of openings, one on the top and the other on the side of the pipe, were 8 inches from the sand face at each end of the tube in order that any flow disturbance at the face of the sand would not influence the results. One set was used for measuring the temperature and pressure at the center of the tube cross section and the other for measuring the pressure at the wall of the tube. Tubes 3 inches in diameter and approximately 12 feet long, with two sets of five openings similarly spaced, were constructed for special tests.

"Ottawa glass sand and Wilcox sand were chosen as porous media for the experiments because of the rounded character of the grains. The course sizes predominated in the Ottawa glass sand and the fine sizes in Wilcox sand. Screened sizes of a building sand were chosen because of the more angular character of the grains. Several different sizes and characters of sands were studied.

"These tests indicated the effect of grain diameter on flow. The flows through the porous media of larger grain sizes were practically straight line relationships throughout the the range of pressures used, these relationships becoming more curved and flatter the smaller the size of grain.

"For all practical purposes, the porosity effects are characterized by changes in the coefficient C in the equation

$$Q = C\,(P_t^2 - P_s^2)^n$$

the exponent n remaining practically constant.

"An interesting fact was determined from the experimental work which might have an important bearing on future research on gas production. For each of several different rates of flow, the pressure squared is a linear function of the distance along the flow tube.

"Some of the most important points in connection with the problem of gauging gas well deliveries may be summarized briefly as follows:

"1. The back pressure method of testing gas wells helps in gas conservation since it eliminates the necessity of frequent open flow tests to the atmosphere.

"2. It is impractical and, in many cases, impossible to determine the delivery capacities of a real high pressure gas well or of a gas well making considerable sand by determining the open flow when blowing the well wide open to the atmosphere. The back pressure method of testing makes it possible to determine the delivery capacity of the well under any conditions of pressure and in the case of a well making considerable sand under open flow conditions it is probable that under conditions of high back pressure no sand is blown from the well.

"3. The use of back pressures makes it possible to talk of gas wells in terms of delivery capacities rather than in terms of open flow. A final determination of how to describe the delivery capacities of the gas well may remove from the minds of the public the erroneous impression of tremendous gas reserves.

"4. A back pressure method of testing gas wells points out data and information that relate to many of the practical problems of gas production.

"5. Work is now being done to apply many of the principles determined from studies of gas wells to studying oil production and it is highly probable that such principles will aid materially in the conservation of gas in relation to its production with oil."

MUCH WORK WAS DONE HERE DURING GAS CONVENTION

This office, for the convenience of members of the Natural Gas Department of the American Gas Association and maintained throughout the annual convention of the department in the Mayo Hotel, Tulsa, May 9 to 11, was arranged for by G. A. Peterkin, of Williams Brothers, Inc. It was provided with stenographers, telephone, telegraph messengers and general information service, the purpose being to assist officers, committees and delegates in the carrying out of the convention work. The office was open from 8 a. m. until after adjournment each day and the force was kept busy constantly.

ARCHIBALD LITTLE DIES

NEW YORK, May 14.—Archibald S. B. Little, engineer and public utility rate expert associated with the franchise bureau of the Corporation Counsel of New York, died this week at Brunswick General Hospital at Amityville, Long Island, at the age of 53.

METERS FOR EAST TEXAS ORDERED BY COMMISSION

AUSTIN, Tex., May 14.—A committee representing the pipe lines and oil industry in East Texas yesterday made recommendations in a conference at Austin to the Railroad Commission as to procedure in putting into effect its announced order to require meters on the oil lines in the East Texas Field, demanded by citizens, by producers, by royalty owners and the oil operators themselves to safeguard the field from illegal takings of oil.

Approximately 50 meters, the cost ranging from $500 to $7,000 each, according to type and duty, are to be installed within 30 days.

Recommendations included putting meters on the discharge side of all lines, trunk lines, lines to local refineries and loading racks. The commission is to give pipe lines 30 days to install meters, with individual extensions permissible.

Pipe line companies shall be responsible for accuracy of meters, and for their maintenance. Meters must be within 2 per cent of accurate. Daily report of oil movements shall be made to the commission.

The committee meeting with the commission included representatives of the pipe lines, and C. F. Roeser, president of the Texas Oil and Gas Conservation Association; Clifford Mooers, independent operator; J. R. Parten, president of the Independent Producers Association, and Carl Estes, president of the land, lease and royalty owners' organization.

The commission, which announced at a hearing in Dallas on May 10 the meters will be required, was preparing to issue an order as promptly as possible.

It was advocated at the meeting in Dallas that meters should be locked up, possibly inclosed in metal or wooden houses, to prevent anyone from tampering with, taking off, or changing them in any way, and such housing will no doubt be used by the companies who will install the meters on their lines. The meters are sealed when placed on a line, and if changed, the seal has to be broken testifying to some tampering with the meter. Railroad Commission men and troopers will inspect the meters at various times to see if they have been tampered with or changed. All changes will be made under supervision of Railroad Commission men.

Meters can be by-passed, but with only 40 or 50 meters in key positions on lines in the field, this small number can be easily checked every day, and by-passes soon detected.

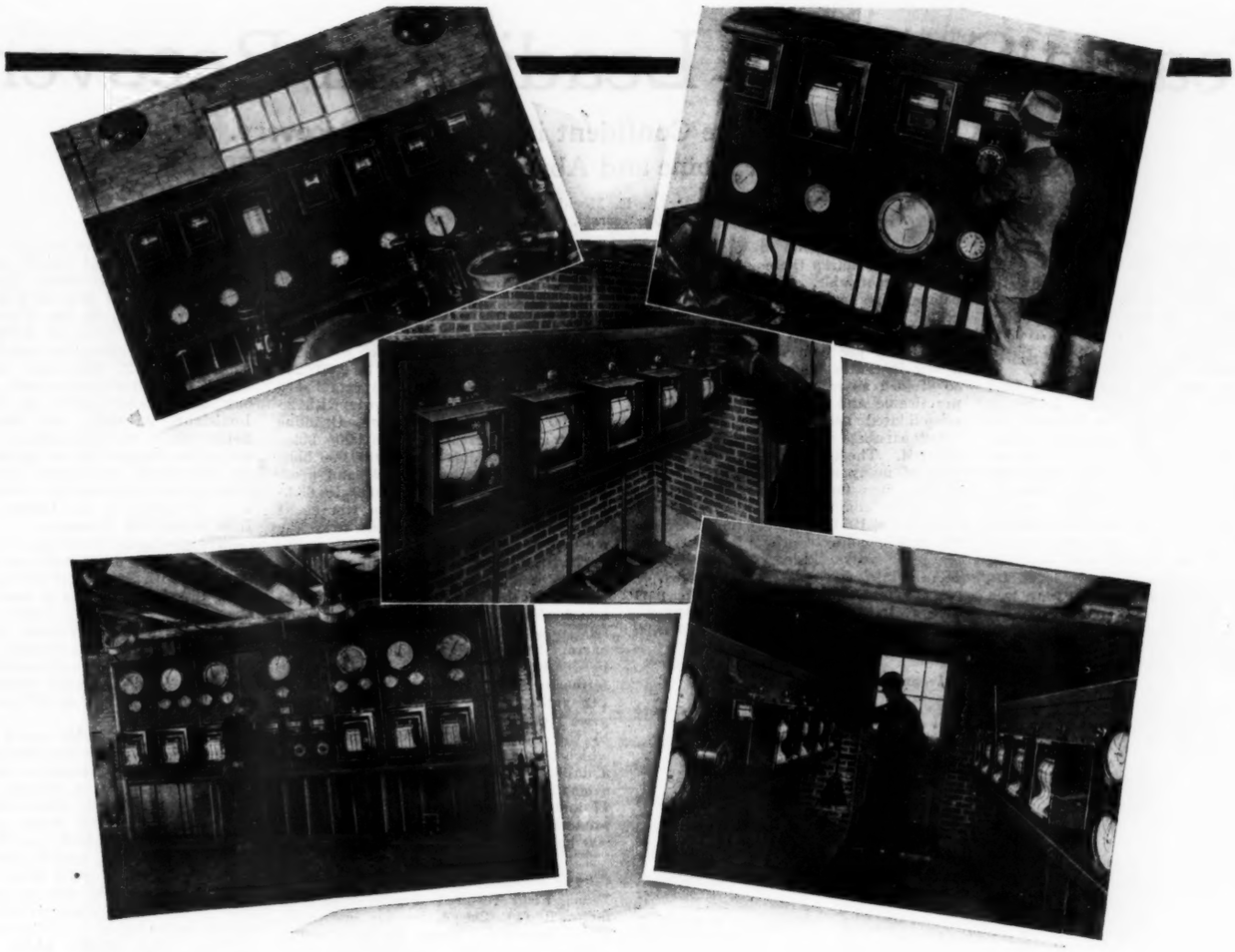
Meters can easily be cleaned and repaired, and when taken off to be worked on, commission men will be called to certify to the time the meter is off the line, and when put back on and in use.

One meter company representative testified that paraffin and temperature did not affect the meters much, and when paraffin clogged the meter it could be cleaned within an hour's time.

On the subject of forms of reports, the pipe line committee has unanimously approved the following suggestions: That effective at the earliest possible date a system of uniform daily reports be required from every purchaser, transporter and refiner of East Texas crude oil owning or operating gathering lines, pipe lines, refineries, loading racks or tank cars, or oil trucks, in the East Texas district. Such reports are to be made on forms prepared by the commission and are to show the daily receipts, deliveries and stock of crude on hand. Receipts are to be itemized to show the name of the owner or operator and name of each lease and number of wells located on each lease from which runs are made and detail receipts from other sources. Deliveries are to be itemized to show to whom deliveries are made and point of delivery.

COL. E. R. STEWART DIES

FORT WORTH, Tex., May 16.—Col. E. R. Stewart, 64, former West Texas oil developer, is dead after a long illness. He was born in Alabama and has been living in Fort Worth for 14 years.



Topping....Cracking....Re-Forming

See that Your Instruments are Abreast of Refining Progress

Through all the stages of refining technique . . . . from the early topping days, through all the processes of cracking, to the latest methods and equipment for re-forming . . . Brown instrument engineering has aided pioneering refiners to solve new and vital problems of temperature, pressure, liquid level and flow control.

That is why you can be sure that the Brown engineering staff knows your needs and how to meet them. And that is why, too, you can be sure that the characteristics of Brown Instruments are such as to serve oil refining requirements perfectly. Let us advise and quote on your instrumentation projects.

THE BROWN INSTRUMENTS COMPANY
4488 Wayne Ave., Philadelphia, Pa.

Branches in 22 principal cities

Brown Instruments

To Measure is to Economize

Teagle Sees Oil Leading in Recovery

S. O. N. J. Plans for Future Confident in Economic Recovery. Reviews 1931 Operations at Home and Abroad. Net for Year $8,704,758

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Suite 2803, No. 19 Rector Street

NEW YORK, May 16.—With the exercise of sound judgment it is possible that with maintenance of gallonage the petroleum industry will be the first out of the present depression, says Walter C. Teagle, president of the Standard Oil Co. (New Jersey) in his annual report to stockholders, issued this week.

"With but little loss in volume in 1931 and yet with most companies reporting a deficit, it is easy to understand the basic trouble with the petroleum industry," said Mr. Teagle. "Too much emphasis has been placed on the number of barrels produced and sold; too little on earnings per barrel. Overproduction at the wells has been matched by excessive runs at the refineries, and the surplus of both crude and products has kept the industry on an unremunerative level. Its particularly bad showing last year was aggravated by, but only partly due to, the general business recession. Uneconomic competition rolled up losses in a season when at least moderate profits should have been the rule. Had the industry consistently endeavored to balance supply with consumption, the story of 1931 operations would have been quite different.

"In so far as it was responsible for its own troubles, certain remedies are available to the industry. If it does not overload the market it should operate at a profit. There is good reason to believe that this elementary truth is now becoming generally recognized, and to the extent that it governs the industry's activities in 1932 the position should be improved. If it exercises sound judgment it is even possible that with a maintenance of gallonage, the petroleum industry may be the first out of the present depression.

But Temporary Interruption

"Your company has continued planning for the future development of its business in the confident expectation that the unsatisfactory results of the current period are but a temporary interruption in growth. Economies and changes made in the past year have placed it in an advantageous position to benefit to the fullest extent by the return of normal conditions."

Earnings of Standard Oil Co. (New Jersey) and its percentage of the earnings of consolidated companies for 1931 were $8,704,758, equivalent to 33.8 cents per share on the capital stock outstanding at the end of the year, and equal to seven-tenths of 1 per cent on the net assets. In order that the company's annual reports might reflect more completely the condition of its entire business, the board of directors of the New Jersey company has for some years past been consolidating the financial statements of subsidiary and affiliated interests. The 1931 report marks the completion, to the extent practicable, of that program, the company states, and its earnings report consolidates all subsidiaries and subsidiaries of subsidiaries where the ownership is 50 per cent or more, except in a few instances where the ownership is so divided as to make consolidation impracticable and where, in any case, the consolidated net value or the consolidated earnings would not be materially affected. The consolidation for the first time of many companies heretofore carried as investments necessarily renders impossible comparison between the figures of the 1931 statement and those under corresponding captions in the reports for prior years. Incorporating in surplus the insurance reserves which, the company points out, are properly a part thereof, the book value of the company's stock as of December 31, 1931, was $48.99 per share.

Income Account

Income account for 1931 follows:

Gross operating income (Note—Including intercompany transactions, but excluding all interdepartmental transactions)		$1,084,926,344.59
Operating charges:		
Costs, operating and general expenses	$928,414,731.51	
Taxes	24,902,704.15	
		953,317,435.66
Balance		$131,608,908.93
Nonoperating income (net)		32,615,457.38
Income before interest charges, depreciation, depletion, amortization, retirements and inventory loss		$164,224,366.31
Interest and discount on funded and long term debts		9,360,545.42
		$154,863,820.89
Depreciation, depletion, amortization and retirements		109,823,975.58
		$45,039,845.31
Inventory loss on crude and refined products		24,421,834.03
Profit for period		$20,618,011.28
Applicable to minority interests		11,913,253.24
Net profit accrued to corporation		$8,704,758.04
Total assets		$1,919,010,367.70

Report on Operations

Mr. Teagle's report on the operations of the parent company and its affiliated and subsidiary companies for 1931 follows in detail:

"The petroleum industry actually paid out more for taxes, labor, material and capital charges during 1931 than it received from the sale of its crude and products, and this loss was incurred despite extensive economies. Liquidation of stocks induced by acute financial necessity in many sections of the industry set a generally unprofitable price level for all products. This distress selling of accumulated stocks was aggravated by the dumping of an even larger volume of products made from unprecedentedly cheap crude.

"Unsatisfactory as this record is, the industry escaped the material decrease in demand with which other industries generally had to contend. It is the only large industry in which sales volume was maintained near previous levels. As compared with railroad traffic, automobile sales, or general manufacturing and retailing operations, it suffered in relatively small degree. Domestic sales of its most important product, gasoline, gained 2.16 per cent, but the overall volume decreased slightly because exports fell off about 30 per cent. Contraction in steamship business, railroad movements, mining and manufacturing reduced sales of fuel oil and lubricants.

Excessive Stocks

"The necessity of cutting costs of operation and administration in 1931 to overtake falling prices was commented upon in the last previous report. Excessive stocks promised an unsatisfactory market until the surplus was reduced. This proved a true forecast. Price reductions followed one another so rapidly that the industry was powerless to effect compensating adjustments. No skill sufficed to counterbalance the losses imposed by factors outside the control of management.

"The industry entered the year with daily average crude production of 2,082,100 bbls., saw this increase to 2,608,250 bbls. and, after control was established by martial law, ended the year with 2,209,100 bbls. daily production. Gasoline in storage increased 3,000,000 bbls., crude oil was reduced by 40,000,000 bbls. and the total stocks of crude and products declined from 677,566,000 to 633,963,000 bbls. The volume in storage at the end of the year was about twice the working stocks necessary.

"Daily consumption, including exports, dropped from 2,648,360 bbls. at the beginning of the year to 2,486,788 bbls. 12 months later; the average price of crude fell from $1.19 for 1930 to 65 cents per barrel. The average wholesale price of U. S. Motor gasoline at Mid-Continent refineries declined from $2.40 per barrel (42 gallons) for 1930 to $1.44. These price recessions were due almost entirely to the flood of oil from East Texas, which began the year with four wells and a daily production of 300 bbls., reached a maximum of 1,200,000 bbls. on August 17 and ended the year with 3,718 wells producing under enforced proration 330,000 bbls. daily.

East Texas

"The excessive production of the East Texas Field resulted largely from two factors: (1) The desire for cheap oil which impelled a small group of crude purchasers to offer contracts for large volumes of oil from individual properties, and (2) the action of a small number of operators in accepting such offers regardless of the plight of adjacent producers who were willing to restrict their output to the pro rata allowable fixed by the Railroad Commission. Although these two groups represent a very small part of the industry, both in number and in capital invested, they dominated the situation. The overproduction resulting from their policy unsettled the market available to other fields until the industry at large was denied any profit on its operation and actual bankruptcy faced many companies. Operations were so completely demoralized that even after armed forced established a measure of control, the fear of a breakdown and consequent release of a flood of cheap oil prevented stabilization.

"The draft on stocks was accomplished only through a shutdown under martial law in both East Texas and the Oklahoma City Fields.

Common Rights in Pool

"The remedy for this situation does not lie entirely in the hands of the industry. A prerequisite is a general understanding that all the owners of properties in an oil pool are, in effect, partners owning the oil and gas underlying their respective holdings. Because of the fugitive nature of oil and gas, each partner should be compelled to respect the common right, so that there may be an equitable division and prevention of waste. Before this can be possible our courts must recognize the inadequacy of the offset well provision as a measure to prevent drainage and establish this conception of ownership in place. Further in pursuit of these ends, the police power of the individual states requires strengthening. Cooperation among the oil states and the producers is essential. To meet the present difficulties the industry must be relieved from the incubus of laws that compel it to engage in wasteful and destructive competition.

"Total gross production of crude oil by all company interests in 1931 was 100,148,063 bbls., almost equally divided between domestic and foreign fields, a decrease of 2,369,927 bbls., or 2.31 per cent. Gross production in the United States was 50,126,748 bbls., or 1,769,305 less than in 1930; abroad it was 50,021,315 bbls., or 600,622 bbls. less. In the domestic fields there was a gain in Texas but losses were made in Oklahoma, Louisiana, Arkansas and the Eastern fields, where the management curtailed operations because of the higher producing costs in the older pools. Abroad, production was decreased in Columbia and Peru; it gained in the Argentine, Dutch East Indies and Rumania.

"The producing companies continued to co-operate with other units of the industry and with state and federal authorities, thereby producing a much smaller quantity of crude than would otherwise have been the case. Foreign production could easily have been doubled from existing wells with a substantially lower cost. The number of wells completed during the year was 773, or 137 less than in 1930.

"Wherever practicable, gas is being returned to the producing formations for the purpose of conservation and in the expectation of greater ultimate recovery of oil at a lower cost. Approximately 47 per cent of our 1931 world production was obtained by natural flow, 8 per cent by gas and air lift, and 45 per cent by pumping. Flowing wells were produced with as low a gas-oil ratio as possible in order to utilize the reservoir pressures to the maximum extent in lifting the crude.

"Total crude stocks, which stood at 55,581,526 bbls. at the beginning of the year, were reduced to 40,422,350 bbls. on December 31, or by about 27 per cent. The companies continued to purchase large quantities of crude while voluntarily curtailing much of their own potential production.

Natural Gasoline

"Production of natural gasoline by the industry declined 20 per cent because of two important factors: The first was that through the control exercised over the production of crude oil and proration of the runs from flush pools, the ratio of gas per barrel of crude produced was materially reduced. The quantity of gas processed for recovery of natural gasoline was thereby greatly reduced, with consequent loss in recovery of natural gasoline. The second factor was that because of the almost universal use of heavy naphtha cracking and reforming processes the amount of these volatile natural products that could be utilized in motor fuel was materially decreased. This necessitated the production of a more stable natural gasoline and the diversion, in large part, of the most volatile liquid fractions to gaseous fuels.

"Our domestic production of natural gasoline was 2,488,000 bbls. as compared with 3,261,000 bbls. in 1930, a decrease of approximately 24 per cent. In the plants in South America, Europe and the Dutch East Indies our total production was 1,686,000 bbls. in 1931 and 1,624,000 bbls. in 1930. Our total natural gasoline production decreased about 15 per cent.

Pipe Lines

"Subsidiary and affiliated companies in the United States were operating on December 31, 1931, 4,003 miles of trunk pipe lines which delivered to terminals 113,310,000 bbls. of crude oil, a decrease of 6,381,000 bbls. The Ajax Pipe Line, of which the company is a part owner through the Ajax Holding Co., moved an additional 21,903,000 bbls. of crude in its first full year of operation.

"In the new East Texas area 292 miles

(Continued on Page 38)

Are you troubled with seepage water?

Have you a basement below sewer level . . . or an elevator sump, scale pit, piping tunnel, etc., that accumulates water by seepage, and drainage? Then you will be interested in the Penberthy Pumps pictured here.

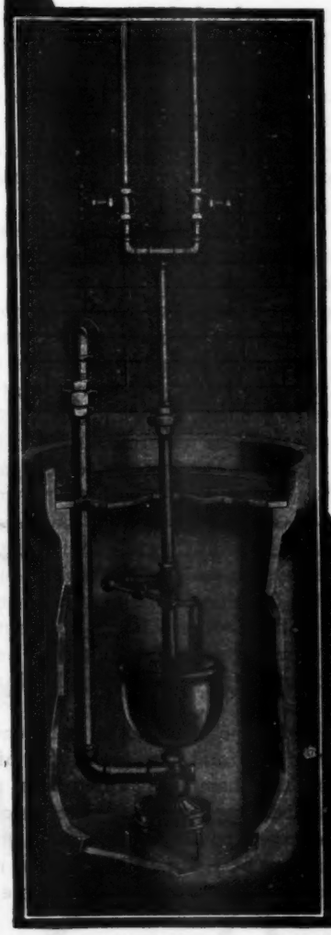
Penberthy Pumps will keep dry the places that cannot be drained directly into the sewer.

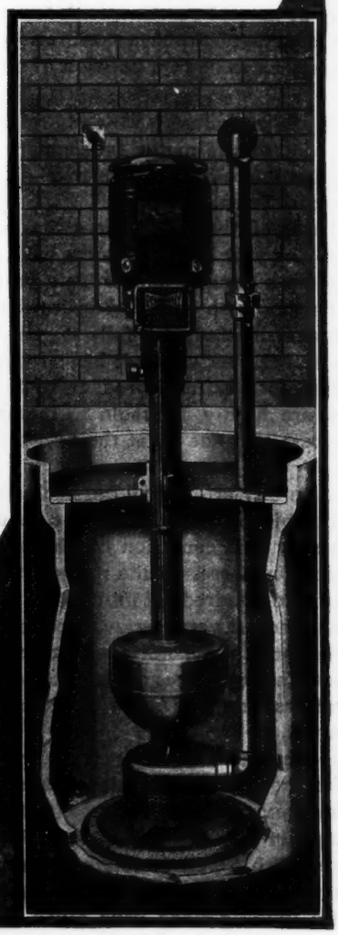
PENBERTHY PRODUCTS

These pumps are completely automatic in operation; when installed . . . and installation is easy . . . they require no attention. They are ruggedly built of copper and bronze so that they are dependable and impervious to rust.

The Penberthy Pump shown at the left is operated by either steam or water pressure. When the steam pressure is down, the change to water operation is instantly made by simply closing one valve and opening another. The electrically operated unit is shown below at the right. The operating cost of both types is very small.

Penberthy Pumps are carried in stock by leading jobbers throughout the country. Write us for capacities, specifications and installation drawings . . or see your plumbing contractor.





PENBERTHY INJECTOR COMPANY DETROIT

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle.

President - - - - - - - - - - - - P. C. Lauinger
General Manager - - - - - - - - - John M. Egan
Editor - - - - - - - - - - - - James McIntyre
Managing Editor - - - - - - - - Andrew M. Rowley
Refinery Editor - - - - - - - - - - C. O. Willson
Technical Editor - - - - - - Charles K. Francis, Ph.D.
Petroleum Engineering Editor - - - - - L. G. E. Bignell
Associate Editor - - - - - - - - - W. T. Anderson
Associate Editor - - - - - - - - - W. T. Ziegenhain
Associate Editor - - - - - - - - Thomas F. Smiley
Advertising Manager - - - - - - - - E. Klappenbach
Circulation Manager - - - - - - - Simon H. Rourke

DISTRICT ADVERTISING OFFICES

C. L. Cain - - - - - 415 Lexington Ave., New York City
C. R. Farmer 6 North Michigan Ave., Room 1416, Chicago, Ill.
Howard Markt - - - 1105 Leader Bldg., Cleveland, Ohio
Neil Williams, 1316 Second National Bank Bldg., Houston, Tex.

TERMS OF SUBSCRIPTION
(By Mail, Postage Prepaid)

Single copies	$ .15	One year (in United States)	$6.00
Three months	$2.00	One year (in Canada)	$7.00
Six months	$3.00	One year (foreign countries)	$7.00

MEMBER AUDIT BUREAU OF CIRCULATIONS

NO NEED TO APOLOGIZE

Manufacturers of natural gasoline, with lower and flexible costs and a superior product, should have no inferiority complex. Why should they be assumed to be in a position of apologizing for their existence?

That branch of the oil industry which is responsible for approximately ten per cent of the motor fuel supply in this country—the Natural Gasoline Association of America—is holding its annual meeting this week in Tulsa.

Like other phases of the oil business the natural gasoline division has had a trying year in which prices have declined to a point which would have been thought impossible a year ago.

The whole situation is an excellent reflection of what can happen when a manufacturing industry fails to guard against changing conditions in marketing over which it has no direct control.

Natural gasoline is a refined product with properties which, properly utilized, are highly desirable in motor fuel but is now selling below the cost of crude oil at the well throughout the Mid-Continent Field.

The question naturally arises how can such a situation develop?

It is one of the objectives at the present annual meeting to devise methods whereby this condition can be remedied. Not only has it meant substantial losses to the manufacturers who have investments running into hundreds of millions of dollars but also, unfortunately, it has been a very serious deterrent to making any sustained improvement in the motor fuel market.

It has been shown several times during the past few months that low priced natural gasoline presents a constant threat to their refined gasoline market.

In passing, due credit should be given to the Association and to its membership for the research and development work which has been carried on for the past several years. It affords what is probably the best example of the results of co-operative work along technical lines, featured with a well correlated program aimed at definitely ascertaining the properties of natural gasoline.

These scientific investigations have given data not only valuable to the natural gasoline manufacturer but to the petroleum industry generally.

They have also made possible the introduction of specialty products which are already an important factor in the total income of the industry and give promise of still greater importance.

Obviously, however, these investigations regarding improved methods of processing, scientific knowledge of products, and additional fields for utilization have no value so long as the industry operates unprofitably so the problem of the manufacturers now is to place their merchandizing methods on a parity with their manufacturing operations.

The discussion of economics and marketing presented at this meeting gives a basis for a program which should quickly bring that branch of the industry out of the red and into the black.

Developments over the past year and more, for the most part, have added to, rather than subtracted from the value of natural gasoline.

The development of the newer type of engines for motor vehicles has tended to emphasize more and more the volatility and antiknock qualities in motor fuel.

The properties of natural gasolines from the volatility angle, when they are blended with refinery gasoline or stabilized so that they can be used as finished motor fuel, are widely known.

Recent investigations, including those still under way, also show that natural gasoline is superior to the ordinary refined fuel in antiknock properties.

Certainly, such a product should not apologize for its existence and be thrown about from pillar to post, trying to find outlets.

In the early days natural gasoline, which was a decidedly different product in physical properties from that now being offered, had obtained a bad name in the industry and part of the trouble that now appears is due to the fact that the consumers have not been educated away from this original idea.

The remedy for existing conditions is too obvious to need elaboration. A more concentrated study that would supplement the research and development work of the past few years directed towards marketing will place the industry in its proper position.

To carry out this program manufacturers, of course, must avoid the parallel of the ostrich in failing to recognize several fundamental conditions in the industry.

So far as natural gasoline is concerned the expansion of cracking has given refiners a product which is comparable in quality to that made by the natural gasoline manufacturer.

This expansion of cracking has placed many refiners in the position where they no longer require the natural gasoline they were accustomed to purchase.

The trend of our export market has also its premonitory aspects and this fact must be taken into serious consideration.

The necessity for reducing transportation costs wherever possible in order that natural gasoline will be more attractive to the users, whether refiners or jobbers, is another important factor.

None of these, however, is an unsurmountable difficulty. The manufacturers have a refined product possessing many superior qualities, with a cost which normally is no higher than that of competitive products.

With these as a basis the natural gasoline manufacturers should be able to get out of the woods and put themselves in position as a permanent and profitable division of the petroleum industry.

The standards of motor fuel are being constantly improved, chiefly in those qualities which natural gasoline can best contribute. The trend in engine design is towards enlarged utilization of natural gasoline.

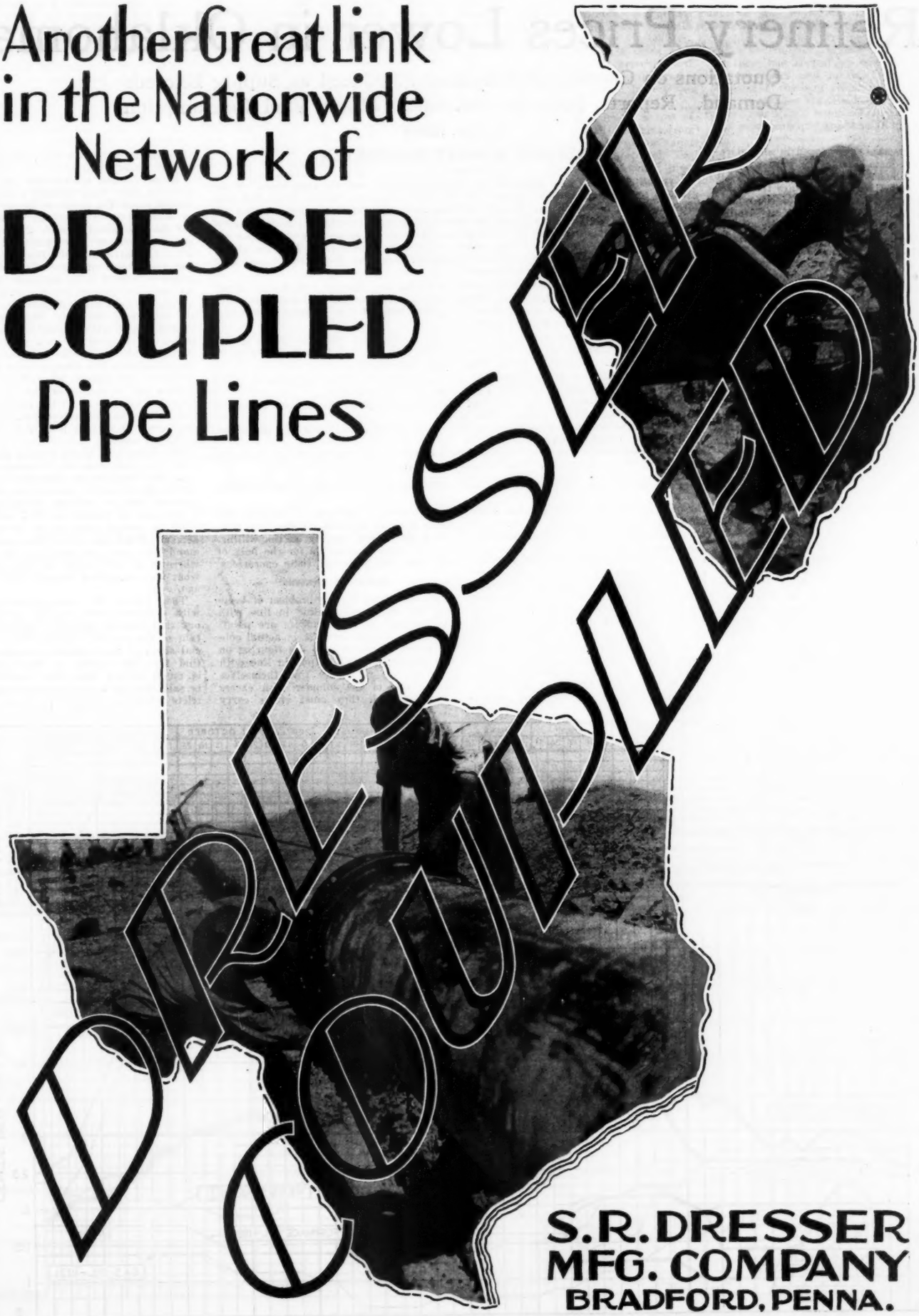
In aviation, natural gasoline supplies 20 per cent of the fuel used out of 10 per cent of the total gasoline supply of the country.

Some of the disadvantages hampering the natural gasoline manufacturer are being studied: improperly adjusted accounting cost; double transportation charges, and lack of seasonal storage. These contribute to the weakening of the natural gasoline market which in turn weakens the refinery market and the whole oil industry price structure.

This illustration of the often stated and observed fact that the prosperity of the oil industry is dependent upon the well being of all its divisions entitles the natural gasoline manufacturers to consideration and co-operation.

A better understanding of their position will go a long way towards stabilizing the oil industry.

Another Great Link in the Nationwide Network of DRESSER COUPLED Pipe Lines



S. R. DRESSER MFG. COMPANY
BRADFORD, PENNA.

Refinery Prices Lower in Oklahoma

Quotations on Gasoline and Kerosene Reduced as Supply Exceeds Demand. Reports Indicate Decreased Motor Fuel Consumption

By C. O. Willson

Price weakness developed in several refined products during the past week in the Oklahoma (Group 3) market. All grades of refinery gasoline are from one-eighth to one-half cent under the quotations of a week ago, and natural gasoline quotations also are fractionally lower. Kerosenes, which have been the strongest product of the refined market for several weeks in the Mid-Continent, were reduced one-fourth cent with supplies available from several refiners at the lower quotations. The weakness in this product was reflected in slightly lower quotations for tractor and furnace oil distillates.

The only product to record an advance for the week was fuel oil. While not actively traded, the supplies continue limited and buyers have been forced to advance their prices in spot purchases for the better grades. The lower priced gas oil cuts, generally sold as U.G.I. material, are firm.

Excess Gasoline

The weakness in refinery gasolines has been due to the increased offerings of a few refineries, particularly in inland Texas. Whether or not this gasoline will be absorbed with purchases by other refiners remains to be seen. Some market observers are of the opinion that the few refiners who have been taking this excess gasoline as it appears on the market from week to week are tiring of their "Santa Claus" position. Most of these buyers have curtailed the operations of their own refineries and have indicated their willingness to buy limited quantities of gasoline in order to prevent it being thrown on the general market at distress prices with resulting demoralization to oil markets generally. It was expected that as the industry moved into the season of maximum gasoline consumption the quantity of this excess gasoline to be absorbed by interrefinery purchases would decrease and by summer this buying support would not be necessary. However, reports indicate that the quantity is increasing and it now seems certain that the refinery buying will be reduced unless the sellers who have been forcing their material on the market are willing to curtail their refinery output in line with the current demand. Obviously there is a limit to what a few refiners can do in removing distress material from the Mid-Continent market with its more than 1,200 cars of gasoline daily coming from 130 operating plants. The success of the plan to prevent distress sales of gasoline on the spot market is dependent entirely on the willingness of those responsible for the bulk of this material to reduce their operations.

Decreased Demand

As one phase of this problem of keeping the supply of gasoline in line with the demand, market students are pointing to a probable decrease in actual consumption. Refiners who are figuring on maintaining a plant output in line with that of last year may find themselves at the end of the summer with excess supplies which they must either carry through the winter or dump on the market at distress prices.

Reports based on gasoline tax collections in most cases indicate a decline in consumption. For instance the collections in North Dakota based on inshipments for the first quarter, show a drop of 26 per cent and in Wisconsin 6 per cent when compared with the first quarter of last year. Several other states show declines of from 2 to 20 per cent. Figures for the first quarter are not an absolute barometer on what will take place over the balance of the year. They are often affected by weather conditions and the policy of shipping to bulk stations for storage purposes. Representatives of the major refiners who have a large number of their own stations as well as jobber outlets are in agreement that the gasoline demand throughout the Middle West and Southwest will be less than last year, the estimates varying from 2 to as high as 15 per cent.

The Bureau of Mines reports also support this contention for the entire country. The data for the first three months show a decline of 2.7 per cent in domestic demand based on refinery shipments and a decrease in exports of 18.7 per cent with an overall decrease in motor fuel demand of 4.6 per cent. The export demand has now decreased to the point where it is only about 50 per cent of what was considered normal three years ago.

The decline in consumption varies with different areas and it is pointed out that refiners serving a certain section of the country should make a special study of their market for they may find that the decline in their demand is much greater than the average. It is said that in certain agricultural districts where the farmer purchases have

REFINED MARKET BAROMETER

Opposing trends were apparent in refinery markets over the past week. While gasoline tank car quotations weakened in the Mid-Continent, Middle West and California, price changes in the eastern refining areas indicated strength. Along the East Coast and Gulf Coast fuel oil and Diesel oil prices strengthened with scattered price advances at several interior refineries. Reports on kerosene and furnace oils indicated a decline in demand with prices reduced in some areas. Furnace oil demand slow. Advances in some grades of cylinder stocks at Pennsylvania and East Coast refineries. Wax prices unchanged.

Mid-Continent—Gasoline prices lower in Oklahoma, Kansas and Inland Texas with no changes in North Louisiana and Arkansas. Natural gasoline quotations lower. Kerosene tractor fuel and furnace oil prices reduced due to lessened demand. Fuels firm. No changes in other products.

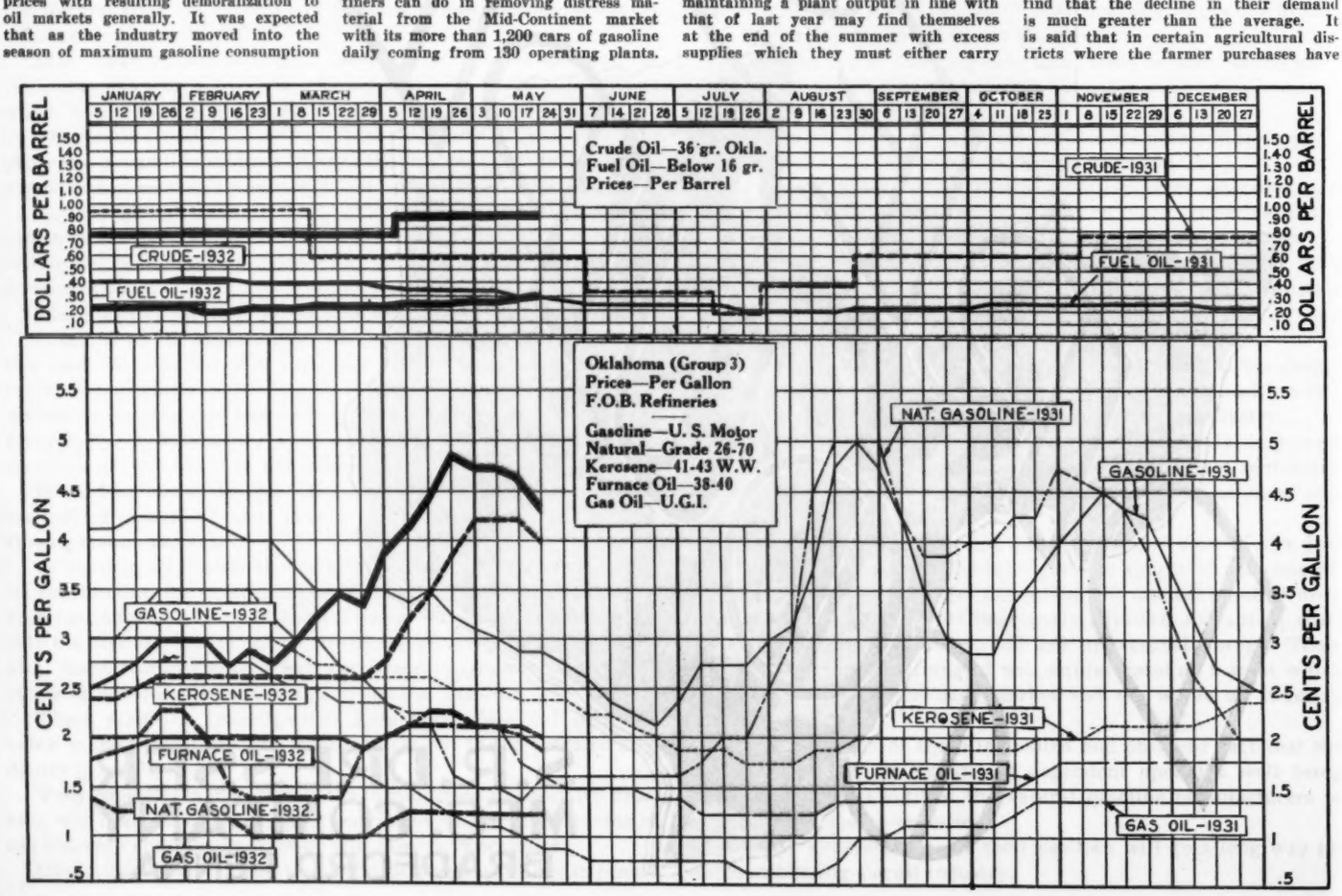
East Coast—Bunker fuel and Diesel oil prices advanced. Gasoline prices strong. Kerosene quiet. Steam refined stocks advanced. Furnace oil demand less with no changes in price. Wax unchanged. Slow export movement.

Chicago—Refinery gasoline, natural gasoline and kerosene prices reduced. Cold weather factor in gasoline demand. Fuels and gas oils unchanged.

Pennsylvania—Refinery gasoline and kerosene prices generally higher. Advances in some grades of cylinder stocks. Wax slow.

California—Refinery gasoline prices lower for domestic and coastwise movement. Some grades of fuel oil lower.

Gulf Coast—Trading dull. Fuel oil prices higher. Fractional advance in gasolines for domestic movement. Slow demand for neutrals.



been reduced to a minimum the motor fuel and motor oil demand is not more than 75 per cent of normal. The kerosene and tractor fuel demand has also dropped materially in those sections.

The current reports on motor vehicle production and registration also support the expectation of decreased gasoline demand over the balance of the year. New car production has been running about 50 per cent of last year and the 1931 production was approximately one-half of the 1929 peak. This in effect means that not enough new cars are being manufactured to replace those permanently removed from service and thus the number of units requiring motor fuels and motor oils is decreasing. Those in touch with retail markets also are of the opinion that the consumption of gasoline per motor vehicle, particularly in the case of family car, will not be so large this year as normally due to the necessity of reducing expenditures on the part of the car owners. The demand estimates to be made public by the economics committees of the Federal Conservation Board and the American Petroleum Institute at the Institute's semiannual meeting in Tulsa the first week in June, should be of particular value in solving the problem of probable demand over the balance of the year.

Gasoline and Naphtha

Low octane U. S. Motor gasoline was available from several sources in Oklahoma and Inland Texas on a basis of 4⅜ cents Group 3, the first of the week. Resale U. S. Motor was reported offered as low as 4⅛ cents. Some off specification material sold as the U. S. Motor grade was purchased at 4 cents.

Most of the refiners in Oklahoma have not changed their quotations. They are not active in the spot market and their regular customers are willing to pay up to 5 cents for the low octane material. The 57-65 octane material is bringing a premium of three-eighths cent over the low octane and 65 octane and above five-eighths cent. The higher octane material has not been as weak over the past few days as has the low octane. The cheap material for the most part is coming from refiners who do not have the facilities to manufacture high octane gasolines.

Quotations on the higher and lower endpoint refinery gasolines are nominal. A few refiners have a policy of maintaining a price of one-eighth to one-fourth cent above U. S. Motor for their 400 endpoint material. Some of these refiners report a steady demand especially in cases where the octane number gives it a rating close to the middle grade.

Some distress sales of 390, 375 and 350 endpoint material have been made during the past week at less than the high for the low octane U. S. Motor grade. There is little demand for these grades and these refiners after endeavoring to secure the usual price differentials, closed sales at the unusually low prices. The general quoted market on these grades when no octane rating is involved range from 4⅝ to 5⅛ cents.

Natural Gasolines

No doubt one of the reasons for the weakness in refinery gasolines during the past week has been the continued low prices for natural gasolines. All grades of natural are weak and prices are generally lower than they were a week ago. The 26-70 is available at 1⅞ cents with sales as low as 1¾ cents reported last week. The higher vapor pressure grades range down to 1⅝ cents in both Oklahoma and Texas.

The 18-55 grade is slow at a low of 2⅜ cents. The principal complaint from refiners is based on the sales of low vapor pressure material sold as motor fuel. The superstabilized grades with vapor pressure around 11 pounds have been sold as low as 3½ cents although the general asking price is from 3¾ to 4 cents. Grades of 9-pound vapor pressure or less are now available at a low of 4 cents. These gasolines are of sufficiently low vapor pressure so that they should give satisfactory performance during the summer months and unless quotations are advanced they will become more and more a factor, as a competitor with the best refinery grades.

Kerosene

A combination of increased output and a decreased demand is responsible for the lowering of kerosene prices. The higher prices which have been effective in recent weeks for kerosene caused several refiners who had been buying from other companies to change their operations so that they could increase their output and have material to sell. The spring season of maximum consumption is over although a steady demand is expected through the summer months. The 41-43 water white grade dropped to a low of 4 cents in Oklahoma last week and this price was shaded by a few Texas refiners.

Other Products

The demand for furnace oils and tractor fuels has slowed up and all grades are one-eighth cent lower. Heavy fuels of desirable viscosity are scarce and prices on some grades are 2½ cents per barrel higher than last week. Lubricants and wax prices are unchanged in Oklahoma.

MAY REQUIRE REPORT ON LIQUID FUEL SHIPMENTS

WASHINGTON, D. C., May 16.—Under a bill introduced in the U. S. Senate by Senator David A. Reed of Pennsylvania, consignors of liquid fuels would be required to make monthly reports to the U. S. Bureau of Mines on all shipments of liquid fuels across state lines. The measure, referred to the committee on interstate commerce, apparently is designed to combat bootlegging.

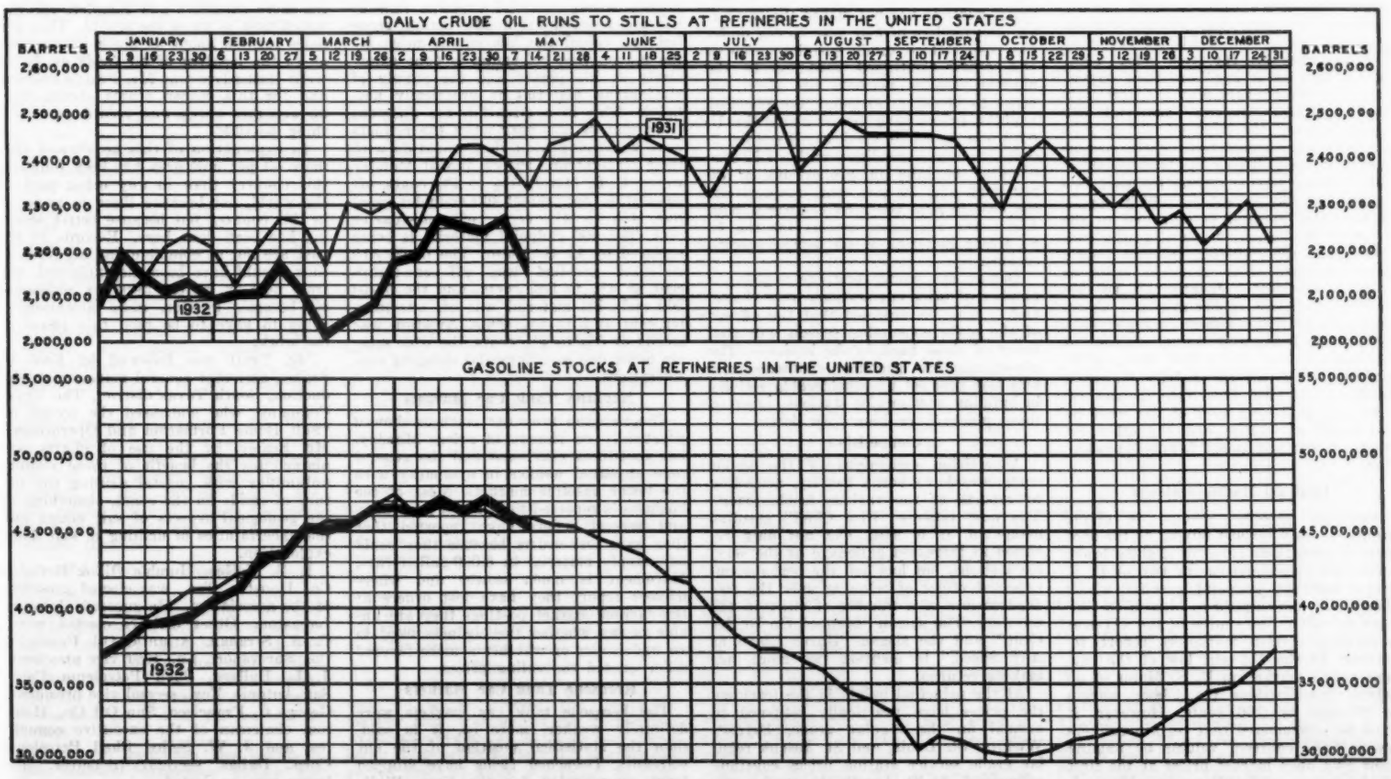
The reports would show the name and address of consignor, points from which shipments were made, means and methods of transportation, name and address of every consignee, destination of every consignment, quantity in gallons of every consignment, and quality or kind of liquid fuels in every consignment. The Bureau of Mines would make the record available to the taxing authorities of the states. Failure or neglect to comply with the law involves a penalty of not more than $1,000 fine, six months' maximum imprisonment, or both, with costs of prosecution.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending May 14:

	Week ending May 14				Week ending May 7, 1932				Week ending May 9, 1931			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	447,600	6,441,000	5,994,000	100.0	436,000	6,798,000	6,137,000	100.0	442,100	8,716,000	8,375,000
Appalachian	91.8	96,400	1,701,000	1,104,000	91.8	93,000	1,740,000	1,212,000	93.8	72,100	1,691,000	1,115,000
Indiana, Illinois, Kentucky	98 9	307,700	6,450,000	4,139,000	98.9	290,700	6,401,000	4,064,000	97.5	336,900	6,317,000	3,622,000
Oklahoma, Kansas, Missouri	89.6	263,100	3,992,000	3,304,000	89.6	231,200	3,904,000	3,242,000	89.4	277,300	3,541,000	4,135,000
Texas	91 3	585,600	8,062,000	8,888,000	91.3	536,400	8,168,000	8,714,000	91.9	539,300	7,716,000	9,219,000
Louisiana and Arkansas	98 9	161,300	1,996,000	4,659,000	98.9	152,300	2,149,000	4,726,000	98.3	162,300	2,304,000	2,385,000
Rocky Mountain	89 4	38,000	2,045,000	638,000	89.4	39,700	2,060,000	641,000	93.1	53,300	1,876,000	826,000
California	96.7	459,900	14,111,000	96,060,000	96.7	404,400	14,401,000	95,713,000	98.8	443,100	13,649,000	98,451,000
Total United States	95.1	2,359,600	44,798,000	124,786,000	95.1	2,183,700	45,621,000	124,449,000	95.7	2,326,400	45,810,000	128,128,000
Texas Gulf Coast	99.8	470,300	6,451,000	6,089,000	99.8	431,100	6,568,000	5,945,000	100.0	405,600	6,612,000	6,654,000
Louisiana Gulf Coast	100.0	110,000	1,842,000	3,927,000	100.0	104,700	1,992,800	2,992,000	100.0	114,400	2,155,000	1,407,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) gas and fuel oil stocks.



All data based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above table.

Unfavorable Weather Slackens Buying

Chicago Marketers Expect Increased Demand Now That Better Motoring Conditions Prevail. Gasoline Production High

By Robert C. Conine

Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, May 16.—The current weakness in the Chicago district gasoline tank car markets is attributed almost entirely to unfavorable weather conditions which marred the scheduled opening this month of the season of expanding demand. The tardy spring rains and "nippy" winds, if the past four days are any indication, are now definitely out of the way and marketers are looking forward to a bulge in jobber demand. That the slackened jobber buying is not traceable to efforts to bear down the market, but simply to the fact that consumer demand has in most cases made little inroad on gasoline in storage at their bulk plants. Marketers report that only here and there has there been any evidence of price sniping. However, the strength of the factors working for and against the gasoline tank car markets cannot be gauged at this time and contradictory opinions as to the direction this week of the price trend are about evenly divided among the marketers.

Refiners, however, are practically unanimous in the belief that today's markets mark the low point for this part of the season. But then, it is really up to the refiners to decide whether the markets tumble to the low levels of last year or whether thy firm up and give all concerned an opportunity to come out of the red. There is too much gasoline at this time in Chicago district, and, according to expert refinery observers, too much gasoline is being made in Texas and the Mid-Continent. The proposition, apparently, is this: The larger refiners and others who may profit through the differential rate route must buy large quantities of Texas and Mid-Continent gasoline, and they are far from being "sold" on the idea as it has been their experience that the refiners who are now seeking to unload "distress" material will again threaten the markets just as soon as their plants can refill their storage tanks and cars. There has been considerable refinery buying during the past two weeks, but the extent to which supply is exceeding demand is indicated in the estimate of one major operator who contends that the culpable refiners should have curtailed their runs to stills at least 20 per cent a month ago. In this district the latest report available shows that refiners reduced their runs per week by 136,000 bbls., and the production of cracked gasoline by 48,000 bbls., while gasoline stocks for the district showed a decline of 114,000 bbls. One district refiner was shutdown most of last week as the result of a fire, and the other refiners report continued lowered production.

Contract Business Slower

Contract gasoline volume is giving ground to open market buying as the spot market quotations move to slightly lower levels. An occasional car or two of U. S. Motor and 400 endpoint gasoline which the refiner has shipped to himself in Chicago district is the source of the 4¼-cent quotations certain marketers report receiving. At the 4½-cent low of the current ruling market on U. S. Motor of no octane specifications the jobber margin in Chicago is 6.06 cents. However, it must be remembered that certain refiners insure their contract volume by naming their own open market prices at the first of the month while giving or taking advantage of the daily published price fluctuations. These individual open market quotations have been consistently below the regular ranges, so that it is likely that a considerable volume of material is moving at prices under the ruling markets.

Tank Wagon Firmer

Some betterment is noted in the tank wagon and service station situation over the territory. There are still a great number of points where relief is not in sight, but the movement toward normalizing the regular and third grade gasolines continues. At Saginaw the service station and tank wagon postings were advanced to 13.5 cents, from 12.3 cents tank wagon and 12.1 cents, service station. The regular grade tank wagon and service station prices were advanced from 14.2 cents to 15.5 cents at Saginaw. At Grand Rapids the service station price was boosted to that of the tank wagon, 16.6 cents, an advance of 0.8 cent. At Bartlesville, Okla., the service station price was advanced from 16.1 cents to 17 cents, while the tank wagon price remained at 14.1 cents. At Tulsa the Standard of Indiana postings at its new station are tank wagon, 17.1 cents; service station, 20.1 cents, and the third grade service station price of 15.6 cents.

Price Cutters Less Active

One might suppose that the trackage station operators feel that they are "on good behavior." The major companies are busy cleaning up practices which are frowned upon. This is at their franchise stations when they do not have complete control and where premiums and discounts are added to the good will value of the branded gasolines and lubricating oils. At the trackage stations, where tank car lot buying is the rule, the fact that their gasoline costs have been cut considerably either through blending or through the purchase of "distress" gasoline has not moved the inveterate undersellers of last year to cut under the posted third grade gasoline price of 13.5 cents. Continued weakness in the natural gasoline markets has given impetus to blending, although the blending naphtha prices have moved above the U. S. Motor gasoline markets. Blending 2-cent natural gasoline with 4.75-cent blending naphtha in proportions of 30 per cent and 70 per cent, respectively, the cost is 3.93 cents as compared with 4.50 cents, the going market for the U. S. Motor material of no octane specifications.

During the winter and early spring a number of price cut stations were closed, and it may be expected that the advent of the main consuming season will find many of these back in the business. The abnormally low gasoline wholesale markets last year set up considerable activity in building new service stations. Some of these places have been torn down.

Competition

Advertising campaigns of the major companies have borne heavily, according to reports at the various headquarters. The now famous "Fire Chief" gasoline campaign, it is said, has not only resulted in increased gallonage at the service stations, but has had the perhaps unexpected effect of winning over the fire departments of a number of cities in the territory. The slogan "Stepped Up 70 Per Cent," and the slogan "Burns Clean at Any Speed," to mention two more, are making returns.

At the principal points in the territory the prices have practically returned to normal on the regular grade. Detroit, Wichita, St. Louis, and St. Joseph regular grade service station prices continue subnormal. At St. Joseph the service station third grade gasoline price was advanced 2 cents to 11 cents, and the tank wagon posting was advanced 1 cent to 11 cents. Minneapolis has threatened to follow the example of Detroit, but is now apparently out of danger.

Gasolines in Minneapolis

From time to time the results of tests made on the three grades of gasoline sold in the territory have been presented in these columns, but none of these approaches in interest the findings in Minneapolis when the three gasolines sold by 14 companies were tested last week. The octane numbers of the premium grade gasolines range from 63.5 to 75.2. The premium grades listed are nonethylized. The octane numbers on the regular grades range from 50 to 67.2, and the octane numbers on the third grade range from 48 to 57.6. Strangely enough the third grade motor fuel of certain marketers has a higher octane number than their regular grade. Gravities of the gasolines range from 58.6 to 78.7. The undyed gasolines range in color from minus 2 to plus 26. Dissolved gum in milligrams per 100 c.c. range from none to as high as 670.

Gasoline Tank Car Prices

The gasoline tank car markets appear slightly softer at the opening of the week. Movement of gasoline has picked up over the week-end due to greatly improved motoring weather. However, it is the opinion in Chicago district oil trade circles that it will take nearly a week of continued fine weather to bring the jobbers back into the market actively. A few jobbers are reported to have bought as many as six cars to fill their storage, but it is generally believed that the majority are fairly well stocked up. There is hardly any business in the higher test gasolines, although octane ratings figure prominently in inquiries. One refiner who admits that he is not differentiating in his price quotations on low octane and middle octane material explains that he has not lowered his middle octane grade but has raised the low octane price for the reason that reforming is done extensively at his plants and the supply of straightrun material is practically negligible. This is a situation far different from that of last year when the refiners were wondering what they would do with their straightrun. Prices quoted Monday were: U. S. Motor, 4½ to 4¾ cents, off one-eighth cent; 60-62 400 endpoint gasoline, 4⅝ to 4⅞ cents, off one-quarter cent. The 400 endpoint material is being replaced by U. S. Motor. The 64-66 375 endpoint gasoline was off one-eighth cent at 4⅞ to 5⅛ cents, and the 68-70 360 endpoint material was off one-quarter cent at 5 to 5¼ cents. Aviation was steady at 5⅞ to 7½ cents, the wide margin being due to differential shipping considerations.

Naphtha Tank Car Markets

The naphtha tank car markets showed practically no change in prices Monday, but spottiness continued and the general tone appeared weaker in sympathy with the lower gasoline markets. Most of the business is reported to be small lot orders, and several sellers have reported that they have lost orders because they could not supply material in 6,000-gallon cars. Movement is much slower and where makers report they have lost orders at the current market postings they are unable to say whether the business went to an underseller or whether a more favored seller quoted the ruling prices.

Kerosene Tank Car Markets

The kerosene tank car markets were definitely weaker, more so, it is said, than the statistical position of the cut warrants. Drenched fields have stopped farm consumption for the time. While offerings are said to be more numerous it is understood that the larger refiners are producing less kerosene. One reason for this is the demand from automobile manufacturers, principally Ford and Studebaker at this time, for enamel solvent, a cut between petroleum spirits and kerosene. Prices Monday were: 41-43 water white kerosene, 4 to 4¼ cents, off one-eighth cent; 42-44 water white kerosene, 4⅛ to 4⅜ cents, off one-quarter cent.

Fuel Oils and Gas Oils

Distillates, gas oils and fuel oils continue unchanged in price and in fairly good position. An interesting development which is causing some heated discussion in the district is the outcome of the case of Interstate Commerce Commission No. 243,211-1,203, Burning Oil Distributors Association, and others vs. Abilene Southern Railway Co., decided March 19, 1932. The commission held that refined oil rates apply on oil having gravities over 36°.

IMPORTANCE OF SCOUTS STRESSED AT CONVENTION

By Neil Williams

HOUSTON, Tex. May 17.—That scouting will play a more and more vital part in the industry's efforts to obtain oil reserves for the future was stressed by Wallace E. Pratt, director of the Humble Oil & Refining Co., in his address before the National Oil Scouts Association of America at the opening of its ninth annual convention held in Houston May 15-17.

Mr. Pratt pointed out the need for uncovering a great amount of additional oil reserve if the future requirements of the world are to be supplied. To do this, much depends on the information obtained and records kept on all wells, present, past and future. He emphasized the need of oil companies keeping more extensive and complete records, which task is up to the scouts. That dry holes furnish about as much information as to the location of oil fields as do oil wells themselves was Mr. Pratt's opinion, and for this reason scouts should keep an accurate check and record on everything possible.

In explanation of this he showed that more oil per unit area has been found in this country than in any other part of the world, not because there is more oil in this country but because better scouting has been done here. Records of the past are not as complete and accurate as they should have been, he explained, but from now on, as the need for additional oil becomes greater, more attention is going to have to be paid this phase of the work.

Mr. Pratt was followed by Fred C. Sealey, assistant general manager of production, South Texas district, The Texas Company, who addressed the scouts on "Salt Dome Formation and Operations." Mr. Sealey, by the use of charts, explained for the benefit of those visitors unfamiliar with coastal drilling the nature of sands on the coast, something of the geological aspects of salt domes and the uncertainties of drilling in salt dome exploration.

L. S. McGee, Humble Oil & Refining Co., Houston, Tex., was elected president of the association. He succeeds John H. Langston. Other officers elected were: C. A. Strahan, Atlantic Oil Producing Co., Shreveport, La., first vice president; J. L. Bullard, Shell Petroleum Corp., San Antonio, Tex., second vice president; George C. Francisco, Sun Oil Co., Houston, chairman of the executive committee, and J. W. Selby, Shell Petroleum Corp., Dallas, secretary-treasurer. The latter was re-elected.

East Coast Refined Oils' Trend Higher

Advances in Fuel and Diesel Oils Round Out Betterment in General Market. Report Plan to Absorb Distressed Gasoline

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Suite 2803, No. 19 Rector Street

NEW YORK, May 16. — The East Coast refined products market continued to show a constructive tendency during the past week, which was featured by increased posted prices for bunker "C" fuel oil and Diesel oil at principal bunkering ports along the seaboard. The advances in this division of the market, had been anticipated, following recent firming up in the position of gasoline, kerosene, lub and gas oil markets, and round out the betterment in the price basis which developed on the recent raise in crude quotations in principal producing fields.

Gallonage was reported to be well maintained in all divisions of the market during the week, and there was a growing tendency on the part of refiners to get behind the movement for continued curtailment of refinery operations during the summer season, to permit of drastic liquidation of surplus stocks of motor fuel. This policy of reduced refinery runs, naturally, would react beneficially likewise on holdings of other refined products, and would put the East Coast industry in the strongest statistical position enjoyed by eastern refiners and marketers for many years.

May Absorb Distress Gasoline

An unconfirmed report circulated in market circles during the week that aroused widespread interest was to the effect that leading marketers on the Atlantic Seaboard had decided upon a plan to absorb stocks of distressed motor fuel which might be dumped in Atlantic Seaboard markets during the summer months as a step toward the maintenance of posted price levels in this area.

Tank Car Gasoline

Other major marketers have met the advances in tank car gasoline initiated by Standard Oil Co. (New Jersey) at East Coast marketing centers at the close of the previous week, and the markets are reported well maintained at the advanced levels.

Gasoline under 65 octane number is currently quoted at 6½ to 6¾ cents per gallon in the New York harbor district, 7 cents per gallon at Boston, 6½ to 6¾ cents per gallon at Baltimore, and 6¾ cents per gallon at Charleston, S. C. On motor fuel of 65 octane number and above, the local market is 7 to 7¼ cents per gallon, with Boston quoting 7¼ cents, Baltimore 7 to 7¼ cents, and Charleston also at 7 to 7¼ cents per gallon.

Jobbing demand for gasoline has been active throughout the week, and distributors in most instances are keeping their storage full. The general feeling in market circles is that current prices are soundly established and further increases in the refinery basis are looked for as the season advances.

Tank Wagon Gasoline

No price increases in tank wagon and service station schedules have developed as yet in connection with the latest increase in refinery quotations, but the trade is on the lookout for some action along these lines. It is variously reported that the pending markup will range from one-half to 1 cent per gallon, as to market.

Tank wagon gallonage has shown a further seasonal expansion during the past week, and refiners in some instances have drawn against storage to fill the requirements of their marketing divisions.

Kerosene

Quiet has prevailed in the kerosene tank car market during the past week, although the undertone continues strong. All of the companies have not yet met the recent half-cent advance in the refinery price basis, and 41-43 water white continues being offered in the New York harbor area at 5½ to 6 cents per gallon in tank car lots. Refiners are making every effort to keep current output of refinery within economic levels, and it is expected that steady improvement in the statistical position of the market will be witnessed during the remainder of the year.

There has been some slackening in tank wagon volume on kerosene, and prices are unchanged. Marketers describe the current inactivity as the usual lull between the end of the winter consuming season and the start of the spring and summer demand, which runs into considerable gallonage in this section of the country, although agricultural consumption, naturally, is not on a par with that experienced by midwestern marketers.

Lubs

Demand for cylinder stocks continued active throughout the week, and the steady upward movement of prices was resumed. Spot 600 steam refined, in barrels, was quoted unchanged at 21 to 22 cents per gallon, but 650 was higher at 23 to 24 cents per gallon, with 600 Pennsylvania flash and 630 flash also higher at 24 to 25 cents and 30 to 31 cents per gallon, respectively. Warren 600 E was also higher at 24 to 25 cents per gallon with Oil City 600 E higher at 23 to 24 cents. The market for bright stocks showed firmness at 30½ to 31 cents per gallon for the light and 29 to 30 cents per gallon for the dark.

Continued quiet was reported in the market for red and pale oils, which were without price change during the period.

Fuel Oil

Pronounced strength developed in the market for bunker "C" fuel oil during the week, with the advance, effective May 10, of 10 cents per barrel at principal Atlantic ports bringing the market up to 75 cents per barrel, in bulk, f.o.b. terminals, 15 cents over the 1931 price of 60 cents per barrel, the all-time low in East Coast territory. The advance at New York and other Atlantic ports was followed on May 11 by a markup of 5 cents in posted schedules at principal Gulf ports, bringing that market up to 60 cents per barrel.

The higher fuel oil market had been looked for in trade circles since the recent markups in posted prices for crude oil in principal domestic producing fields.

Particular significance is attached to the bunker oil increases at this time, in view of the pending conference here of foreign oil leaders. Hitherto, Russian and Rumanian competition in European bunkering centers has been largely instrumental in holding down prices for these oils in American ports, and the current advance is taken as an indication of an expected favorable outcome of the negotiations for the restoration of selling prices on refined oils based on world parities, rather than the reckless dumping of oil at cut-throat prices merely as a gallonage-building expedient.

Diesel Oil

As had been indicated in recent comment in market circles, the Diesel oil market here was moved up during the week, an advance of 20 cents per barrel being made effective May 10, putting the posted price at $1.50 per barrel in bulk, f.o.b. local bulk terminals. The same quotation applies at other principal Atlantic Coast ports.

Gulf Diesel oil prices were also moved upward during the week, the advance, made effective May 11, being 15 cents per barrel, and putting the Gulf market at $1.35 per barrel in bulk, with the usual differential for lighterage alongside within harbor limits. This advance increases the differential between Gulf and East Coast prices to 15 cents per barrel, as compared with a spread of but 10 cents per barrel in recent weeks.

Gas Oil

The higher market for bunker and Diesel oils has developed renewed firmness in the gas oil market, and an increase in the posted price level is expected in some quarters.

There has been a marked reduction in the volume of price cutting on gas oil, despite current inactive demand, and principal sellers are adhering firmly to the posted price of 4 cents per gallon for 28 gravity plus recycled oil in tank car lots.

Furnace Oil

Leading refiners will name prices on domestic heating oils for delivery during the 1932-33 heating season next week on the basis of 4½ cents per gallon for 32-36 oil and 5½ cents per gallon for 36-40 gravity oil, in tank car lots, advances of one-half cent per gallon in each instance.

The higher price basis is in line with current firmness in other fuel oils and reflects the higher production costs resulting from the recent markups in posted prices for crude oil in principal producing fields.

There was but limited movement in the spot market during the week and prices were unchanged.

Wax and Petrolatum

There were no price changes on either paraffin wax or petrolatum during the week, and hand-to-mouth buying continued in evidence in both divisions of the market.

Export buyers were inquiring for fully refined wax in slightly better volume, but the amount of actual new business developed during the week was of negligible proportions.

Gulf Export Market

Operators were disturbed by a report that a part cargo of approximately 30,000 bbls. of 64-66 naphtha had been sold out of the Gulf for shipment to France at 4½ cents per gallon, c.i.f. French port. In as much as the lowest quotation in the open market was 5 cents per gallon, f.o.b., considerable skepticism was evident on the rumored sale this week, although it was generally known that one or two large suppliers had been shading posted schedules in recent trading.

A part cargo of about 25,000 bbls. of 64-66, for June shipment to France, which buyers had been inquiring for at the Gulf, was reported to have gone to Rumania during the week.

Rumanian exporters have again advanced their quotations. Posted prices f.o.b. Constanza as of April 28 were $15.62 per ton for gasoline (up $1.13 for the week); $11.66 for heavy gasoline, an advance of 97 cents; $6.20 per ton for lamp oil, an increase of 25 cents, and $9.15 for first grade white spirit, an increase of 16 cents. Other products remained unchanged at $7.47 for second grade white spirit, $5.20 for gas oil, and $3.58 for fuel oil. It is expected, however, that Rumanian sellers will advance fuel oil quotations in line with the increases named during the past week at United States Gulf and Atlantic Coast ports.

Export operators here are looking for radical changes in the export situation as a result of the series of conferences of international oil leaders being held in New York this month, and it is expected that the immediate reaction of the meetings will be a lessening of selling pressure on the part of Russian and Rumanian markets, with a consequent improvement in the netback on export sales.

Petroleum Exports

There were no developments of outstanding interest in the export market situation during the week, and shipments reported for the week ended May 7 continued along routine lines.

The following table shows refined petroleum exports from the port of New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	May 7	Apr. 30	Apr. 23
Gasoline	21,000	23,000	55,000
Naphtha	172,000	3,000	320,000
Kerosene	16,000	8,000	25,000
Fuel and gas oil	5,000	1,270,000	68,000
Lub. oil	345,000	1,848,000	898,000
Petroleum, ref'd.	245,000	370,000	385,000
	Pounds		
Petrolatum	.....	.....	13,000
Paraffin wax	690,000	595,000	2,050,000
Refined	56,000	60,000	.....
Scale	.....	.....	70,000
Lub. grease	635,000	375,000	945,000

The arrival here of leading European and Russian oil executives for a conference on export market conditions has aroused widespread interest among export operators here. The belief is expressed that the outcome of the conference will be a cessation of the drastic price cutting which has made exporting operations so unprofitable during the past few years.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended May 7 totaled 1,629,000 bbls., a daily average of 232,714 bbls., compared with 1,985,000 bbls., a daily average of 283,571 bbls. for the previous week and a daily average of 325,714 bbls. for the four weeks ended May 7. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast Ports—	
Baltimore	121,000
New York	971,000
Philadelphia	359,000
Others	91,000
Total	1,542,000
Daily average	220,286
At Gulf Coast Ports—	
New Orleans and Baton Rouge	22,000
Port Arthur and Sabine district	65,000
Total	87,000
Daily average	12,428
At all United States Ports—	
Total	1,629,000
Daily average	232,714
Daily average four weeks	325,714

Distribution of total imports for the week ended May 7 follows:

Crude	1,428,000
Gasoline	40,000
Kerosene	5,000
Fuel oil	156,000

California Oil Receipts

There was only one cargo of California refined petroleum received at Atlantic or Gulf Coast ports during the week ended May 7, this being a 51,000-bbl. cargo, made up of 43,000 bbls. of gasoline and 8,000 bbls. of lubricating oil on the Associated Oil Co. tanker Solana, and discharged at New York. This was a daily average of 7,286 bbls. for the week and compared with 70,000 bbls., or 10,000 bbls. daily, for the previous week, and a daily average of 20,071 bbls. for the four weeks ended May 7.

There were two cargoes reported cleared from California for the East, 115,000 bbls. of gasoline on the Sun Oil Co. tanker "Sun" for Philadelphia and 71,600 bbls. of gasoline on The Texas Company tanker "Harvester," consigned to Providence, R. I.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINES

OKLAHOMA (Group 3)—	May 17		May 10	
*U. S. Motor	.04⅜	.05	.04⅝	.05
60-62 400	.04½	.05¼	.04⅝	.05⅛
64-66 390	.04⅝	.05¼	.04⅞	.05⅛
64-66 375	.04⅜	.05¼	.05	.05¼
68-70 350	.04⅞	.05⅜	.05⅛	.05¼
NORTH TEXAS—				
*U. S. Motor	.04⅛	.04½	.04½	.04¾
60-62 400	.04⅜	.04⅝	.04⅝	.04¾
64-66 390	.04½	.04⅝	.04⅝	.05
64-66 375	.04⅝	.04¾	.04¾	.05
64-66 360	.04¾	.05	.05⅛	.05¼
†NORTH LOUISIANA—				
*U. S. Motor	.05¼		.05¼	
60-62 400	.05¼	.05⅜	.05¼	.05⅜
†ARKANSAS—				
*U. S. Motor	.05¼		.05¼	
CHICAGO Based on Okla. (Group 3)—				
*U. S. Motor	.04½	.04¾	.04⅝	.04⅞
60-62 400	.04⅝	.04⅞	.04⅞	.05⅛
64-66 375	.04⅞	.05⅛	.05	.05¼
Aviation fighting grade	.05⅜	.07½	.05⅞	.06½
68-70 360	.05	.05¼	.05¼	.05½

Octane Ratings—Above quotations cover price ranges on gasoline in which no octane rating is given. Week of May 17, in the case of the U. S. Motor and 60-62 400 endpoint grades where an octane rating of 57-65, inclusive, is guaranteed, prices are three-eighths cent per gallon higher than quotations shown in above tables; where an octane rating of better than 65 is guaranteed, the prices are five-eighths cent higher. In the case of the remaining grades, gasolines of 65 octane rating or higher are quoted one-half cent higher than the quotations shown in above tables.

Unless otherwise provided by agreement of buyers and sellers, the Series 30 testing equipment of the Ethyl Gasoline Corp. is recognized as standard in determining octane ratings.

*Present distillation specifications on U. S. Motor gasoline are: 10 per cent evaporated, 167° F. maximum; 50 per cent, 284° F. maximum; 90 per cent, 392° F. maximum; residue not exceeding 2 per cent; maximum vapor pressure, 12 pounds. Additional specification on U. S. Motor gasoline available from bulletins of Bureau of Mines, Washington, D. C.

†For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
U. S. Motor	.06½	.06¾	.06¾	.06⅝
60-62 400	.06⅝	.06¾	.06½	.06⅝
64-66 375	.06¾	.06⅞	.06⅝	.06¾
68-70 350	.06⅞	.07	.06⅞	.07

Octane Ratings—In the case of U. S. Motor and 60-62 400 endpoint grades, same price differentials based on octane ratings as shown in above tables for Oklahoma and other Mid-Continent areas.

CALIFORNIA (domestic movement only)—				
54-58 U. S. Motor	.05	.05¾	.05½	.06
58-60 400	.06	.06½	.06½	.07
EAST COAST—				
U. S. Motor, below 65 octane:				
New York (Bayonne)	.06½	.06¾	.06¾	
Boston	.07	.07¼	.07¼	
Baltimore, Md.	.06¾	.07	.07	
Charleston, S. C.	.06¾		.06¾	
U. S. Motor, 65 octane and above:				
New York (Bayonne)	.07	.07¼	.07	
Boston	.07¼		.07½	
Baltimore, Md.	.07	.07¼	.07	
Charleston, S. C.	.07	.07¼	.07	
GULF COAST (domestic)—				
U. S. Motor, 65 octane and above	.05½	.05¾	.05¼	.05½
U. S. Motor, below 65 octane number	.05¼	.05½	.05	.05¼

NAPHTHAS

OKLAHOMA (Group 3)—	May 17		May 10	
50-52 450 (blending)	.04¼	.04½	.04¾	.05
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.05¾	.06	.05¼	.05½
ARKANSAS—				
48-50 450 (blending)	.04¾	.05	.04⅝	.05¼
CHICAGO Based on Okla. (Group 3)—				
50-52 450 (blending)	.04⅜	.04⅝	.04⅜	.04⅝
Cleaners' naphtha, 56-58 gr. 200 i.b.p.-320 e.p.	.06¾		.06¾	
Lacquer diluent, 180 i.b.p.-250 e.p.	.09		.09	
Lacquer diluent, 140 i.b.p.-200 e.p.	.09		.09	
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.06½	.07½	.06½	.07½
Stoddard solvent, 300 i.b.p.-410 e.p., over 100° flash	.06	.06¾	.06	.06¾
Pet. thinner, 290, 300 i.b.p.-415 e.p., over 83° flash	.04¾	.05½	.04¾	.05½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.05¼	.06½	.05¼	.06½
Petroleum spirits	.03⅞	.05	.03⅞	.05

NATURAL GASOLINES

OKLAHOMA (Group 3)—	May 17		May 10	
Grade 18-55	.02¼	.02½	.02½	.02¾
Grade 26-70	.01⅞	.02	.02	
Grade 30-70	.01¾		.01⅞	
NORTH TEXAS—				
Grade 18-55	.02¼	.02⅜	.02½	.02⅝
Grade 26-70	.01⅞		.02	
Grade 30-70	.01¾		.01⅞	
NORTH LOUISIANA—				
Grade 26-70	.02¼		.02½	
CALIFORNIA—				
75-78 375	.04½	.05	.04½	.05

Note—Grades 18-55, 26-70 and 30-70 are three of 24 grades adopted by the Natural Gasoline Association of America effective January 1. The grades are based on pounds vapor pressure and amount evaporated at 140° F. See Page 74 of January 7 issue for explanation of new grading system. While not exactly the same specifications apply, Grade 18-55 corresponds to the former Grade A, Grade 26-70 to former Grade AA and Grade 30-70 to former Grade BB.

KEROSENES

(All kerosenes water white)

OKLAHOMA (Group 3)—	May 17		May 10	
41-43	.04	.04¼	.04¼	.04½
42-44	.04⅛	.04⅜	.04⅜	.04½
NORTH TEXAS—				
40-41	.03⅞	.04	.04	.04¼
41-43	.04	.04⅛	.04¼	.04⅜
†NORTH LOUISIANA—				
41-43	.04½	.04¾	.04½	.04¾
42-44	.04¾	.05	.04¾	.05
†ARKANSAS—				
41-43	.04½		.04½	
PENNSYLVANIA (inland refineries)—				
45	.05	.05⅛	.04¾	.05
46	.05	.05⅛	.04⅞	.05¼
47	.05¼	.05½	.05	.05¼
CHICAGO (Based on Group 3)—				
41-43	.04	.04¼	.04⅛	.04⅜
42-44	.04⅛	.04⅜	.04⅜	.04⅝
***CALIFORNIA—**				
38-40 high burning test	.04	.04¾	.04	.04½
NEW YORK (Bayonne, N. J.)—				
41-43	.05½	.06	.05½	.06
GULF COAST (domestic)—				
41-43 water white	.04¼	.04½	.04¼	.04½

*For Pacific Coast consumption.

†For Arkansas, Louisiana and Mississippi delivery.

TRACTOR FUELS*

OKLAHOMA (Group 3)—	May 17		May 10	
39-40 prime white	.02⅜	.02½	.02½	.02¾
38-40 light straw	.02⅛	.02¼	.02¼	.02⅝
NORTH TEXAS—				
38-40 light straw	.02⅛	.02¼	.02¼	.02½
CHICAGO (Based on Group 3)—				
38-40 light straw	.02¼	.02½	.02¼	.02½
PENNSYLVANIA (inland refineries)—				
41-43 prime white	.04	.04¼	.04	.04¼

*There are no standard specifications for tractor fuels. Grades commonly sold have flash under 175° F. (open cup) and under 575° F. endpoint and less than .2 per cent sulphur. Tractor fuels are available from all Mid-Continent refining groups at prices in line with the Oklahoma market taking into consideration differentials in freight rates.

FURNACE OILS*

OKLAHOMA (Group 3)—	May 17		May 10	
32-36 straw	.01¾	.01⅞	.01⅞	.02
36-38 straw	.01⅞	.02	.02	.02¼
38-40 straw	.02	.02⅛	.02⅛	.02¼
39-41 prime white	.02⅜	.02½	.02⅜	.02½
NORTH TEXAS—				
38-40 straw	.02	.02⅛	.02⅛	.02¼
†NORTH LOUISIANA—				
36-40	.02½	.02⅝	.02½	.02⅝
†ARKANSAS—				
32-36	.02½	.02⅝	.02½	.02⅝
CHICAGO (Based on Group 3)—				
32-36 straw	.01⅞	.02	.02	.02⅛
38-40 straw	.02⅛	.02¼	.02⅛	.02¼
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.03¾	.04	.03¾	.04
NEW YORK (Bayonne, N. J.)—				
32-36	.04	.04½	.04	
36-40	.05	.05½	.05	

*Above prices are for furnace oils of zero cold test, under 190° F. flash and good odor.

†For Arkansas, Louisiana and Mississippi delivery.

GAS OIL, DIESEL OIL AND FUEL OIL

Gas oil (G.O.) quoted per gallon basis; Diesel oil and fuel oil per barrel.

OKLAHOMA (Group 3)—	May 17		May 10	
32-36 (G.O.) cracking stock	.01⅜	.01½	.01⅜	.01½
U.G.I. (G.O.)	.01⅜		.01⅜	
32-36, zero to 15 (G.O.) high flash	.01⅜	.01½	.01½	.01⅝
28-30, zero to 10	.52½	.55	.52½	.55
26-30, zero to 10	.50	.55	.50	.55
24-26	.42½	.45	.42½	.45
20-22	.40	.45	.40	.45
16-20	.35	.40	.35	.40
Below 16	.32½	.35	.30	.32½
NORTH TEXAS—				
32-36 (G.O.) industrial	.01¼	.01⅜	.01⅜	.01½
22-26	.45	.50	.45	.50
Below 20	.35	.45	.30	.40
†NORTH LOUISIANA—				
32-36 (G.O.) zero	.02¼	.02½	.02¼	.02½
14-16	.35	.45	.35	.45
†ARKANSAS—				
32-36 (G.O.) zero	.02¼	.02½	.02¼	.02½
14-16	.35	.45	.35	.45
CHICAGO (Based on Group 3)—				
32-36 (G.O.) industrial	.01¼	.01⅜	.01¼	.01⅜
28-30 (zero)	.55	.60	.55	.60
22-26	.40		.40	
18-22	.32½	.37½	.32½	.37½
Below 18	.25	.30	.25	.30
PENNSYLVANIA (inland refineries)—				
36-40	.03¼	.03½	.03¼	.03½

Note—Fuel oils of more than 40 cold test generally 5 to 10 cents per barrel less in all areas than shown in above tables.

†For Arkansas, Louisiana and Mississippi delivery.

CALIFORNIA—				
30-34 (G.O.) per bbl.	.70	.95	.75	.95
27 plus Diesel	.70	.90	.75	.90
15-19 Bunker (at tidewater)	.55	.75	.55	.75
15-19 Bunker (cargo lots)	.50	.65	.50	.65
15-19 (tank cars)	.45	.70	.45	.70
GULF COAST—				
28-30 (G.O.)	.03	.03⅛	.03	.03⅛
28-30 Diesel	1.20		1.20	
Bunker C (bulk cargoes)	.48	.50	.45	.50
Bunker C (bunkers)	.55	.60	.55	
NEW YORK (Bayonne, N. J.)—				
28 plus (G.O.)	.04		.04	
*28-30 Diesel	1.40		1.30	
†Bunker C	.75		.65	

*Lighterage 6½ cents per barrel.

†Lighterage 5 cents per barrel.

PETROLEUM COKE*

Prices per ton f.o.b. refineries in Chicago area.

	May 17		May 10	
Breeze (screenings)	3.50	3.75	3.75	
Still runs	4.50	4.75	4.75	
Lump and egg	5.00	5.50	7.00	7.50

*Refiners will absorb freight up to 80 cents a ton.

NEUTRAL OILS

(Viscosity at 100° F. and Color)

OKLAHOMA (Group 3)—	May 17		May 10	
Zero to 10 Cold Test:				
150-3	.06¼	.06½	.06¼	.06½
180-3	.07½	.07¾	.07½	.07¾
180-4	.07	.07¼	.07	.07¼
200-3	.08¼	.08½	.08½	
200-4	.08	.08¼	.08	.08¼
240-3	.09¾	.10	.09¾	.10
240-4	.09	.09½	.09¼	.09½
280-3	.11¾	.11⅞	.11¾	.11⅞
280-4	.10¼	.10½	.10¼	.10½
300-3.5	.11¾	.12	.11¾	.12
350-3.5	.12¼	.12½	.12¼	.12½
400-4	.12¾	.13	.12¾	.13
500-4.5	.13¼	.13½	.13¼	.13½
100-2 Paraffin Oil	.04¼	.04½	.04¼	.04½
15-30 Cold Test:				
200-3	.07¾	.08	.07¾	.08
200-4	.07½	.07¾	.07½	.07¾
240-3	.09¼	.09½	.09¼	.09½
240-4	.08¾	.09	.08¾	.09
280-3	.10¾	.11	.10¾	.11
280-4	.09¾	.10	.09¾	.10
PENNSYLVANIA—				
150 vis., No. 3, 400-405:				
Zero pour test	.15	.16	.15	.16
10 pour test	.14	.15	.14	.15
15 pour test	.13½	.14½	.13½	.14½
25 pour test	.12¾	.13¼	.12¾	.13¼
30 pour test	.12¾	.13	.12¾	.13
180 vis., No. 3, 25 pour test	.15¾	.16½	.15¾	.16½
200 vis., No. 3:				
Zero pour test	.22	.23½	.22	.23½
10 pour test	.21	.22	.21	.22
15 pour test	.19½	.20	.19½	.20
25 pour test	.18	.18½	.18	.18½
30 pour test	.17¾	.18	.17¾	.18
GULF COAST—				
Pale Oils:				
100-2-2½	.05		.05	
200-3	.06½		.06½	
300-3	.07		.07	
500-3½	.08	.08½	.08	.08½
750-3½	.09	.09½	.09	.09½
1,200-3½	.10½	.11	.10½	.11
2,000-4	.12	.12½	.12	.12½
Red Oils:				
200-5-6	.05	.05½	.05	.05½
300-5-6	.05½	.06	.05½	.06
500-5-6	.06¾	.07	.06¾	.07
1,200-5-6	.09½	.10	.09½	.10
2,000-6 plus	.11	.11½	.11	.11½

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

CALIFORNIA—

Pale Oils:				
100-2½-3	.07¾	.08	.07¾	.08
200-2½-3	.07¾	.08	.07¾	.08
300-3-3½	.08¼	.08½	.08¼	.08½
350-3-4	.08¾	.09	.08¾	.09
400-3-4	.09¼	.09¾	.09¼	.09¾
450-3-4	.09¾	.10	.09¾	.10
550-3-4	.10¼	.11	.10¼	.11
Red Oils:				
200-4½-5	.07¾	.08¼	.07¾	.08¼
300-5-6	.08¼	.08¾	.08¼	.08¾
350-5-6	.09	.09¼	.09	.09¼
400-5-6	.09½	.09¾	.09½	.09¾
450-5-6	.10	.10¼	.10	.10¼
500-5-6	.10½	.11	.10½	.11
600-5-6½	.11½	.12	.11½	.12
700-6½ plus	.12½	.12¾	.12½	.12¾
750-6½ plus	.13	.13½	.13	.13½
900-6½ plus	.14½	.14¾	.14½	.14¾

NEW YORK (Bayonne, N. J.)—

Paraffin Oil:		
25 pale	.10¼	.10¼
28 pale	.07¼	.07¼
280 red	.12½	.12½
250 red	.11½	.11½
225 red	.10	.10
200 red	.09¼	.09¼

BRIGHT STOCKS AND STEAM REFINED STOCKS

OKLAHOMA (Group 3)—	May 17		May 10	
600 light green S.R.	.05	.06	.05	.06
600 dark green S.R.	.04	.04½	.04	.04½
Bright Stock:				
190-200 D	.22		.23	
150-160 D, 0-10	.20¾	.21	.20¾	.21
150-160 D, 10-25	.20¼	.20½	.20¼	.20½
150-160 D, 25-40	.19¾	.20	.19¾	.20
150-160 E	.20		.20	
PENNSYLVANIA—				
600 S.R.	.14	.14½	.13¾	.14½
650 S.R.	.16½	.17	.16½	.17
600 Pennsylvania flash	.17½	.18	.17½	.18
600 D filtered	.22½	.23	.22½	.23
600 E filtered	.17	.17½	.17	.17¼
Pennsylvania Grade bright stock: Bright Stock, No. 8 color, 145-50 vis., 210-540-550 flash:				
10 pour test	.27½	.28½	.27½	.28½
15 pour test	.25	.26	.25	.26
25 pour test	.24	.24½	.24	.24½
35 pour test	.23½	.24	.23½	.24

WAX AND PETROLATUM

(Prices per pound)

OKLAHOMA (Group 3)—	May 17		May 10	
124-126 white crude scale	.01¾	.02	.01¾	.02
PENNSYLVANIA—				
122-124	.02		.02⅛	.02¼
124-126	.01¼		.02⅛	.02¼
NEW YORK (Bayonne, N. J.)—				
Refined Wax:				
120-122	.02¾		.02¾	
125-127	.02⅛		.02⅛	
130-132	.03⅛		.03⅜	
133-135	.04		.04	
135-137	.04⅛		.04⅛	
Petrolatum in barrels in carload lots:				
Dark Green	.01¾		.01¾	
Amber	.02⅛		.02⅛	
Extra amber	.02⅝		.02⅝	
Cream	.04⅝		.04⅝	
Lily white	.05⅛		.05⅛	
Snow white	.06⅛		.06⅛	

EXPORT PRICES

GASOLINE

GULF COAST—	May 17		May 10	
U. S. Motor	.05	.05¼	.05	.05¼
60-62 400	.05	.05½	.05	.05½
61-63 390	.05½	.05⅝	.05½	.05⅝
64-66 375	.05½	.05¾	.05½	.05¾
LOS ANGELES, CALIF.—				
U. S. Motor, 53-55 437 e.p.	.03¾	.04¼	.04	.04½
U. S. Motor, 65 octane num.	.05		.05	
U. S. Motor, 67 octane num.	.05¼		.05¼	
U. S. Motor, 69 octane num.	.05½		.05½	
58-62 400 endpoint gasoline	.04¼	.05	.04½	

KEROSENE

GULF COAST—				
41-43 prime white	.04⅜		.04⅜	
41 water white	.04½		.04½	
LOS ANGELES, CALIF.—				
41-43 water white	.03¾	.04¾	.04	.04¾

LUBRICANTS

NEW YORK (Bayonne, N. J.)—				
600, steam refined cylinder stocks, in bbls.	.21	.22	.21	.22
650, steam refined	.24	.25	.22	.23
600, Pennsylvania flash	.24	.25	.23	.24
630, Pennsylvania flash	.30	.31	.29½	
600, Warren E	.24	.25	.23	.24
600, Oil City E	.23	.24	.22½	.23
Light 140-150 Bright Stocks	.30½	.31	.31	.32
Dark 140-150 Bright Stocks	.29	.30	.30	.31

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas (Apr. 1, 1932)† ..... $ .93
East Texas (April 11, 1932)‡ ..... .93
Corsicana heavy* ..... .64
Other fields ..... See gravity table

†Posted by Magnolia Petroleum Co., Sinclair Refining Co., Panola Pipe Line Co., Tidal Refining Co. and The Texas Company. ‡Gulf Pipe Line Co. and Atlas Pipe Line Co. *Magnolia Petroleum Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective April 25, 1932)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) (Mar. 14, 1932) $2.02
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.76
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) (Feb. 26, 1932) 1.70
Penna Grade Oil in Buckeye Pipe Line Lines (Mar. 12, 1932) 1.55
Corning Grade Oil in Buckeye Pipe Line Co.'s line (April 26, 1932) 1.05
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931) ... .60

Pennzoil Co.
(Effective April 25, 1932)

Pennsylvania Grade Oil in National Transit Lines:
Group A $1.97
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B 1.96
Includes Titusville district.
Group C 1.95
Includes Turkey and Tidiout districts.
Group D 1.94
Includes Bear Creek and Porkey districts.
Group E 1.92
Includes Bidenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinsua districts.
Price depends on length of pipe line haul to plant at Oil City.

Tide Water Pipe Co.
(Effective April 25, 1932)

Bradford, Pa. $2.02
Allegany, N. Y. 1.92

Pure Oil Co.
(Effective April 25, 1932)

Cabin Creek, W. Va. $1.70
Bradford Hollow, W. Va. 1.70
Kelly's Creek, W. Va. 1.70

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties ..... See gravity table

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Ilse, light (Aug. 24, 1931) ..... $ .75
Ilse, heavy (Aug. 24, 1931) ..... .53
Fort Collins (April 11, 1932) ..... .86
Florence (April 11, 1932) ..... .80
Wellington (April 11, 1932) ..... .76
Greasewood Dome, Colo. (Apr. 11, 1932) 1.00
Dutton Creek (April 11, 1932) ..... .82
Rock Creek, Wyo. (April 11, 1932) 1.00
Frannie, light (Nov. 3, 1931) ..... .61
Frannie, heavy (Nov. 3, 1931) ..... .51
Salt Creek ..... Mid-Continent gravity table
LaBarge ..... Mid-Continent gravity scale
Big Muddy (April 11, 1932) ..... .98
Grass Creek (April 11, 1932) 1.20
Elk Basin (April 11, 1932) 1.20
Lance Creek (April 11, 1932) 1.15
Poison Spider (Mar. 5, 1931) ..... .70
Notches (Mar. 14, 1927) ..... .65
Hudson (June 3, 1931) ..... .65
Lander (Mar. 5, 1931) ..... .40
Rex Lake (Feb. 22, 1930) 1.10
Osage (Apr. 15, 1931) ..... .98
Lost Soldier (April 12, 1932) ..... .80
Hamilton Dome (Nov. 3, 1931) ..... .45
Greybull (April 11, 1932) 1.30
Cat Creek (April 11, 1932) 1.30
Pondera (Nov. 3, 1931) ..... .90
Sunburst, Mont. (April 11, 1932) 1.05
Hogback, N. Mex. (Aug. 24, 1931) .... .80
Border, Mont. 1.55
Red Coulee, Alberta 1.55
Lea County, N. Mex. (Apr. 1, 1932)* .. .65
Maljamar (April 11, 1932) ..... .60
Artesia-Jackson (April 11, 1932) ..... .65

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull, Hogback and Ilse by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro Oil & Refining Co.
*Posted by The Texas Company, Humble Oil & Refining Co. met this price effective April 11.

WEST TEXAS

Iatan and Westbrook .. Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Mitchell, Ector, Winkler and Pecos Counties* ..... $ .65
Lea County, N. Mex. (See Rocky Mountain States).
Toboro, Pecos County (April 11, 1932)† .55

*Effective April 1, 1932, Magnolia Petroleum Co., The Texas Company. Effective April 11, Humble Oil & Refining Co. and Gulf Pipe Line Co. and Stanolind Oil & Gas Co. in Winkler County. †Shell Petroleum Corp.

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers.....
.....See gravity table
Jennings, La. (April 11, 1932)* ..... $ .75
Lockport, La. ..See Gulf Coast gravity table
Refugio, light ..... See gravity table
Refugio, heavy (April 11, 1932)‡ ..... .80
Markham (April 11, 1932)§ .....
.....See Gulf Coast gravity schedule
High Island (April 11, 1932)¶ .....
.....See Gulf Coast gravity schedule

*Gulf Refining Co. †Magnolia Petroleum Co. ‡Humble Oil & Refining Co. §The Texas Company. ¶Yount Lee Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (al. grades) ..... $ .65
Urania, La. (April 12, 1932) ..... .60
East El Dorado, Ark. (April 6, 1932) .. .65
Stephens, Ark., below 29° (April 12, 1932) ..... .61
Stephens, Ark., 29° and above (April 12, 1932) ..... .64
Other fields ..... See gravity table

Note—Smackover, all grades, The Texas Company, April 1, 1932; Magnolia Petroleum Co., April 6, 1932; Standard Oil Co. of Loui-

(Continued on Next Page)

CRUDE OIL GRAVITY TABLE

	Kansas and Oklahoma 1	North and Central Texas 2	East Central Texas 3	Gray County, Texas 4	Carson and Hutchinson Counties, Texas 5	Salt Creek and LaBarge, Wyoming 6	North Louisiana and Arkansas 7	Gulf Coast (Texas-Louisiana) 8	Cameron Meadows, Louisiana 9	Iowa and Lockport, Louisiana 10
Below 25 degrees	....	....	$.67	....	....	....	$.68	$.80	$.70	$.80
25-25.9 degrees	....	....	.67	....	....	....	.70	.81	.71	.81
26-26.9 degrees	....	....	.67	....	....	....	.72	.82	.72	.82
27-27.9 degrees	....	....	.67	....	....	....	.74	.83	.73	.83
28-28.9 degrees	....	....	.76	....	....	....	.76	.84	.74	.84
Below 29 degrees	$.76	$.76	....	....	....	$.76	....	....	....	....
29-29.9 degrees	.78	.78	.78	....	....	.78	.78	.85	.75	.85
30-30.9 degrees	.80	.80	.80	....	....	.80	.80	.86	.76	.86
31-31.9 degrees	.82	.82	.82	....	....	.82	.82	.87	.77	.87
32-32.9 degrees	.84	.84	.84	....	....	.84	.84	.88	.78	.88
33-33.9 degrees	.86	.86	.86	....	....	.86	.86	.89	.79	.89
34-34.9 degrees	.88	.88	.88	$.76	$.66	.88	.88	.90	.80	.90
35-35.9 degrees	.90	.90	.90	.78	.68	.90	.90	.91	.81	.91
36-36.9 degrees	.92	.92	.92	.80	.70	.92	.92	.92	.82	.92
37-37.9 degrees	.94	.94	.94	.82	.72	.94	.94	.94	.84	.94
38-38.9 degrees	.96	.96	.96	.84	.74	.94	.96	.96	.86	.96
39-39.9 degrees	.98	.98	.98	.86	.76	.94	.98	.98	.88	.98
40 degrees and over.	1.00	1.00	1.00	.88	.78	.94	1.00	1.00	.90	1.00

Note—Magnolia Petroleum Co.'s prices in Oklahoma, North Texas and Central Texas, effective April 1, are the same as above given in Columns 1 and 2, excepting that the schedule begins with below 28 degrees, 67 cents; 28-28.9 degrees, 76 cents. The Empire Pipe Line Co. met the Magnolia prices in Kansas and Oklahoma; the White Eagle Oil Corp. in Kansas and the Pure Oil Co., in Oklahoma.

Column 1—Effective April 1, 1932, Continental Oil Co. in Oklahoma and Kansas; Barnsdall Refineries, Inc., and Standish Oil Co. (Phillips Petroleum Co.), in Oklahoma and Kansas; Skelly Oil Co., Kanotex Refining Co., Derby Oil Co., Vickers Petroleum Co., in Kansas; Magnolia Petroleum Co. and Pure Oil Co., in Oklahoma (see note above); White Eagle Oil Corp., in Kansas (see note above); The Texas Company in Oklahoma. Effective April 11, 1932, Stanolind Crude Oil Purchasing Co. in Oklahoma and Kansas; Gypsy Oil Co., Mid-Continent Petroleum Corp., Champlin Refining Co., Eason Oil Co., Pepper Gasoline Co. and Carter Oil Co. in Oklahoma. Carter Oil Co.'s schedule begins at below 25 degrees, 68 cents, with 2 cents added for each degree upward.

Column 2—Continental Oil Co., effective April 1, in North Texas only; followed on same day by The Texas Company in North and Central Texas; Magnolia Petroleum Co. in North and Central Texas (see note above); effective April 11, the Humble Oil & Refining Co., Gulf Pipe Line Co. and Stanolind Crude Oil Purchasing Co.

Column 3—Effective April 1, 1932, the Magnolia Petroleum Co.; effective April 11, 1932, Humble Oil & Refining Co.

Column 4—Effective April 1, 1932, Magnolia Petroleum Co.; effective April 2, the Philtex Oil Co. (Phillips Petroleum Co.), but its schedule was carried down to below 30 degrees at 66 cents, with 2 cents added for each degree upward. Effective April 11, other companies met Continental schedule.

Column 5—Effective April 1, 1932, Magnolia Petroleum Co.; effective April 2, Philtex Oil Co., excepting that latter company carried its schedule down to below 30 degrees at 56 cents, with 2 cents added for each degree upward. Effective April 11, Continental Oil Co. and Gulf Pipe Line Co. met Magnolia Petroleum Co. prices.

Column 6—Midwest Refining Co., effective April 11, 1932.

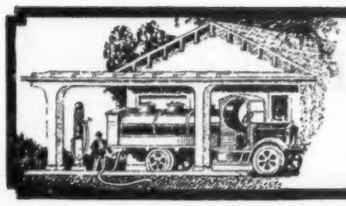
Column 7—The Texas Company, effective April 1, 1932; Magnolia Petroleum Co., effective April 6, 1932; Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Stanolind Oil & Gas Co. (in Pine Island and Pleasant Hill and in Marion County, Texas) and Gulf Refining Co., effective April 11, 1932.

Column 8—The Texas Company, effective April 1, 1932; Sun Oil Co., April 1, 1932; Humble Oil & Refining Co., effective April 11, 1932; Gulf Pipe Line Co., effective April 11, 1932. Gulf's gravity scale ends with a top of 35 and above at 91 cents.

Column 9—Magnolia Petroleum Co., effective April 6, 1932.

Column 10—Magnolia Petroleum Co., effective April 6, 1932.

(California Crude Oil Prices on Page 40)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns May 17.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago	16.0	16.0	3.0	10.0
Decatur, Ill.	16.5	16.5	3.0	10.1
E. St. Louis	15.8	15.8	3.0	9.3
Joliet	16.5	16.5	3.0	10.1
Peoria	16.5	16.5	3.0	10.1
Quincy	16.3	15.2	3.0	9.5
Davenport, Ia.	16.6	16.6	3.0	10.4
Des Moines	16.6	16.6	3.0	10.4
Keokuk	16.6	16.6	3.0	10.4
Sioux City	16.2	16.2	3.0	10.0
Duluth, Minn.	17.6	17.6	3.0	11.0
Mankato	17.2	17.2	3.0	10.8
Minneapolis	17.3	17.3	3.0	11.0
LaCrosse, Wis.	18.3	18.3	4.0	11.1
Milwaukee	17.2	17.2	4.0	10.0
Madison	17.4	17.4	4.0	10.2
Detroit, Mich.	12.5	12.5	3.0	10.0
Grand Rapids	16.6	16.6	3.0	10.6
Saginaw	15.5	15.5	3.0	10.8
Evansville, Ind.	17.3	17.3	4.0	10.1
Indianapolis	17.3	17.3	4.0	10.1
South Bend	17.8	17.8	4.0	10.6
Fargo, N. D.	19.0	19.0	3.0	12.0
Huron, S. D.	18.4	18.4	4.0	11.3
Sioux Falls	17.9	17.9	4.0	11.5
K. C., Mo.	16.0	16.0	3.0	8.7
Springfield*	16.0	16.0	3.0	9.6
St. Louis*	15.5	15.5	3.0	9.4
St. Joseph	15.6	15.6	3.0	9.2
Wichita, Kans.	14.9	14.9	3.0	8.9
Bartlesville, Ok.	14.1	17.0	4.0	8.1

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 1½ cents or more below the price on the regular grade.

Effective November 4—New dump discount applicable on all grades of gasoline sold from tank wagon. Any tank wagon customer buying 25 gallons or more at one time will be given 1-cent discount per gallon off tank wagon price at time of delivery. Customers not under contract receive no other discount.

Effective January 1—Discounts on Q.D.A. on 500 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 2 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	17.0	18.0	4.0	10.0
Fort Worth	17.0	18.0	4.0	9.0
Houston	16.0	19.0	4.0	10.0
San Antonio	16.0	18.0	4.0	9.0
El Paso	16.0	18.0	4.0	12.0
Texarkana	*18.5	18.5	4.0	†11.0
Muskogee, Ok.	15.0	17.0	4.0	9.0
Okla. City	15.0	17.0	4.0	9.0
Tulsa	15.0	17.0	4.0	9.0
Ft. Smith, Ark.	*18.5	18.5	6.0	†11.0
Little Rock	*19.5	*19.5	6.0	†11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

*Less 2½ cents to dealers. †Less 2 cents to dealers.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	16.0	17.0	3.0	11.0
Philadelphia	15.0	16.0	3.0	11.0
Scranton	16.0	17.0	3.0	11.0
Allentown	16.0	17.0	3.0	11.0
Altoona	16.0	17.0	3.0	11.0
Erie	16.0	17.0	3.0	11.0
Dover, Del.	16.0	17.0	3.0	11.0
Wilmington	16.0	17.0	3.0	11.0
Springf'd, Mass.	16.5	17.5	3.0	9.0
Worcester	16.3	17.3	3.0	9.0
Boston	15.5	16.5	3.0	9.0
Providence, R.I.	14.5	15.5	2.0	9.0
Hartford, Conn.	15.5	16.5	2.0	9.0
New Haven	15.6	16.6	2.0	9.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points	17.5	18.0	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	17.0	20.0	4.0	13.5
Pueblo	17.0	20.0	4.0	13.0
Grand Jctn.	19.0	22.0	4.0	15.5
Casper, Wyo.	16.0	19.0	4.0	11.0
Cheyenne	15.0	18.0	4.0	12.5
Butte, Mont.	19.0	22.0	5.0	17.0
Billings	19.0	22.0	5.0	15.5
Great Falls	21.0	24.0	5.0	17.0
Helena	21.0	24.0	5.0	17.0
Salt Lake, Utah	18.5	21.5	4.0	16.0
Albu'que, N. M.	17.0	20.0	6.0	14.0
Boise, Idaho	†18.0	20.0	5.0	18.0
Twin Falls	19.0	22.0	5.0	18.0

*Two-cent discount off tank wagon to dealers.

†One-cent discount to dealers at time of delivery.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.*	22.0	22.0	6.0	11.0
Augusta	22.0	22.0	6.0	14.5
Macon	22.0	22.0	6.0	13.0
Savannah	22.0	22.0	6.0	13.5
Birm'ham, Ala.	21.5	21.5	6.0	13.0
Mobile	22.0	22.0	6.0	10.0
Montgomery	23.0	23.0	6.0	14.5
Jackson, Miss.	19.5	19.0	5.0	11.5
Vicksburg	19.5	19.5	5.0	9.5
Jack'ville, Fla.	19.0	19.0	7.0	10.5
Miami	22.0	22.0	7.0	13.5
Pensacola	20.0	20.0	7.0	13.5
Tampa	21.0	21.0	7.0	9.5
Lexington, Ky.	18.5	19.5	5.0	10.5
Covington	18.5	19.5	5.0	10.5
Louisville	17.5	18.5	5.0	10.5
Paducah	18.5	19.5	5.0	8.5

A third grade "Kyso Green" is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent tax. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

*An additional discount of 1 cent is offered to dealers effective October 6.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N.J.	16 4	16 9	3.0	11.2
Newark	15.7	16.2	3.0	8.5
Annapolis, Md.	17.0	17.5	4.0	10.0
Baltimore	16.4	16.9	4.0	7.0
Cumberland	17.9	18.4	4.0	11.7
Wash'g'n, D. C.	14.9	15.4	2.0	10.0
Danville, Va.	19.1	19 6	5.0	11.9
Norfolk	17.5	18.0	5.0	10.3
Petersburg	18 6	19.1	5.0	11.4
Richmond	17.9	18.4	5.0	10.7
Roanoke	19.1	19.6	5.0	11.9
Charles'n, W.Va.	17.8	18.3	4.0	11 6
Parkersburg	16.4	16.9	4.0	10.2
Wheeling	17.4	17.9	4.0	11.2
Charlotte, N. C.	20.7	21.2	6.0	12.5
Hickory	20 9	21.4	6.0	12.7
Mt. Airy	21.0	21.5	6.0	12.8
Raleigh	20 5	21.0	6 0	12.3
Salisbury	20.8	21.3	6.0	12.6
Charleston, S.C.	18.5	19.0	6.0	10.3
Columbia	20.4	20.9	6.0	12.2
Spartanburg	20.7	21.2	6.0	12.5

Two and one-half cents per gallon discount off tank wagon price of gasoline to dealers except Washington, D. C., and States of Maryland and New Jersey, where discount is 3½ cents.

Prices shown above are for standard gasoline.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6.23
V.M.P. naphtha	12.7	7.23
Cleaners' naphtha	15.2	9.23
Stanisol	15.2	9.23

Tank wagon prices f.o.b. Chicago January 6, 1932. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	15.5	16.5	3.0	10.0
New York*	14.0	16.0	3.0	9.5
Buffalo	16.5	17.5	3.0	9.0
Rochester	16.5	17.5	3.0	9.0
Syracuse	17.3	18.3	3.0	9.5
Boston, Mass.	15.0	16.0	3.0	9.0
Augusta, Me.	17.3	18.3	4.0	9.5
Manch'tr, N. H.	16.9	17.9	4.0	9.0
Burlington, Vt.	17.8	18.8	4.0	10.0

*Prices in steel barrels.

PACIFIC COAST TERRITORY

Standard Oil Co. of California*

	Gasoline			Kero.
	Tank† truck	Posted retail	Incl'ds tax of	tank wagon
Fresno	16.5	14.5	3.0	17.0
San Francisco	16.5	14.5	3.0	15.5
Los Angeles	16.0	14.0	3.0	15.5
Reno, Nev.	20.0	20.0	4.0	19.0
Portland, Ore.	16.0	15.0	4.0	16.5
Seattle, Wash.	17.0	16.0	5.0	16.5
Tacoma	17.0	16.0	5.0	16.5
Spokane	22.5	20.0	5.0	20.5
Phoenix, Ariz.	14.5	17.0	5.0	20.0

†Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.	19.5	19.5	6.0	†12.0
Baton Rouge	18.5	18.5	5.0	†12.0
Alexandria	19.5	19.5	6.0	10.0
Lafayette*	19.5	19.5	6.0	†10.0
Lake Charles*	19.5	19.5	6.0	†12.0
Shreveport	18.5	18.5	5.0	†12.0
Knoxville, Tenn.	22.5	22 5	7 0	13.5
Memphis	21.0	21.0	7.0	9.0
Chattanooga	22 5	22 5	7 0	11.0
Nashville	22.0	22.0	7.0	12.5
Bristol	21.0	21 0	7 0	14.0
Lt. Rock, Ark.	19 5	19 5	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Kerosene prices in Louisiana include 1 cent tax except New Orleans where tax is 2 cents.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	15 9	16.9	4.0	10.25
McCook	17.0	17.0	4.0	11.75
Norfolk	17.75	18.75	4.0	10.75
N. Platte	18.0	18.0	4.0	11.5
Scottsbluff	17.0	17.0	4.0	11.25

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade), 1 cent off normal service station price.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more, 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial), 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Standard Stations, Inc. (Standard Oil Co. of California), effective May 7, advanced gasoline service station prices 3 cents at Portland, Ore., and Seattle, Wash., and 4 cents at Tacoma, Wash.

Continental Oil Co., effective May 11, advanced gasoline tank wagon and service station prices 1 cent at Denver and Pueblo, Colo. Correcting previous report, company announced that prices of 19 cents gasoline tank wagon and 22 cents gasoline service stations were established at Grand Junction, Colo., on May 4. Previous report stated that new prices were 20 and 23 cents.

Standard Oil Co. (Kentucky), effective April 30, reduced retail gasoline at Vicksburg from 19.5 to 19 cents. Effective May 4 company reduced gasoline tank wagon and service station and kerosene tank wagon price 1 cent at Mobile, Ala.

Standard Oil Co. of Louisiana effective May 9 advanced gasoline tank wagon and service station prices one-half cent in Louisiana and Arkansas and several points in Tennessee. This change was incorrectly credited to the Standard of Indiana in last week's issue.

Magnolia Petroleum Co. effective May 9 advanced gasoline tank wagon and service station prices one-half cent at Fort Smith, Ark.

Standard Oil Co. of Indiana effective April 27 advanced gasoline tank wagon and service station prices at Saginaw, Mich., from 14.2 to 15.5 cents; effective May 6 company advanced gasoline service station price at Grand Rapids, Mich., from 15.8 to 16.6 cents; effective May 5 company advanced gasoline service station price from 16.1 to 17 cents at Bartlesville, Okla.

CRUDE OIL PRICES

(Continued from Preceding Page)

siana, Gulf Refining Co. and Louisiana Oil Refining Co., April 11, 1932. Urania posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co; East El Dorado by Magnolia Petroleum Co., effective April 6, 1932; by Gulf Refining Co., effective April 11, 1932; Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Apr. 1, 1932)*	$ .75
Luling (Apr. 1, 1932)*	.64
Mirando (Apr. 1, 1932)*	.99
Pettus (April 11, 1932)‡	1.00
Salt Flat (April 11, 1932)‡	.75
Thrall§	
Lytton Springs (Lockhart) (Apr. 1, 1932)*	.94
Dobrowolski¶	
Same as Mid-Continent gravity scale up to and including 38-38.9°.	
Somerset¶	
Same as Mid-Continent gravity scale up to and including 38-38.9°.	

*Magnolia Petroleum Co., The Texas Company, Humble Oil & Refining Co. posted 80 cents for Mirando, April 11. §Thrall prices same as North Central Texas less 18½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co. ‡Humble Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective April 11, 1932)

Lima	$1.15
Wooster	1.35
Illinois	1.10
Indiana	.75
Princeton	1.10
Plymouth	Shut in
Western Kentucky	1.01
Midland, Mich. (May 17, 1932)*	.65
Dundee, Mich.†	
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale Upper and Lower Traverse Sands, Mich.†	
....Same as Mid-Continent gravity scale	
Somerset, Ky. (April 25, 1932)	.85
Hart County, Ky. (April 16, 1932)‡	.85

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and delivered through own pipe line.

MEXICO

Panuco*	$ .47

*F.o.b. ship, based on April transactions and exclusive of production and export taxes and bar dues.

CANADA

Ontario (Nov. 3, 1931):	
Petrolia*	$1.90
Oil Springs*	1.97
Alberta (Apr. 22, 1932):	
Turner Valley†:	
Crude oil 40-44.9	1.56
Crude oil 45-45.9	2.18
Crude oil 50 and above	2.50
Crude naphtha	3.33
Discolored naphtha	3.08

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Of Interest to Sales Departments

PROBING ALLEGED PLOT TO SMUGGLE GASOLINE

MEMPHIS, Tenn., May 16.—Investigation of a gasoline smuggling ring has been started by Assistant Attorney General McClain of Shelby County with the idea of seeking grand jury indictment of a gasoline broker and at least six filling station operators on charges of conspiracy to defraud Tennessee and evasion of the State's 7-cent levy upon motor fuel.

Preliminary investigation made by F. Vincent Kuhn, supervisor of the gasoline inspection unit, indicates that during March more than 20 tank cars of gasoline were brought into Memphis, reported to the State as lubricating oil, and sold to filling station operators under the agreement that if they paid a price 2 cents above the market they could avoid paying the state tax. The alleged scheme, which apparently involved substitution of records covering lubricating oil for those correctly covering the tank cars of gasoline in the files of a railroad office, the State, and the offices of the filling station operators, now is being further investigated by Avery Blakeney of General McLain's office. An attempt is said to have been made to bribe a state oil inspector in a futile effort to cover illegal operations.

CONTINENTAL COMPANY BUYS COSDEN STATIONS

The Conoco Oil Co. of Chicago, marketing subsidiary of the Continental Oil Co. has purchased 56 retail stations and 5 bulk stations located in Illinois, Wisconsin and Michigan belonging to the Cosden Oil Co. of Chicago. Forty of the stations are in Chicago, nine in Milwaukee, four in Kalamazoo, Mich., and three in Paw Paw, Mich. The bulk stations are in Chicago, Bristol and West Allis, Wis., and Kalamazoo and Paw Paw. George J. Woods, Conoco manager for two years, will manage the merged organizations.

Acquisition of the Cosden properties will give Conoco more than 80 controlled outlets in Chicago. The Chicago headquarters will have supervision over marketing properties in Illinois, Ohio, Wisconsin, Michigan, Kentucky and part of Missouri.

CONDEMN TANK WAGON SALES

Peddling gasoline from tank trucks operated on the streets of cities was condemned as a hazard seriously endangering life and property in a resolution adopted by the National Fire Protection Association at its convention in Atlantic City, N. J., May 12. The resolution, recommended by the association's committee on flammable liquids, urged the managing director of the association to request authorities of any city where this hazardous practice exists to take prompt steps to abate it.

STATION OPERATOR WORKS FOR I.W.W.

Gene Howe
Amarillo (Tex.) News

I was talking to a filling station man the other day and he was complaining like most people are.

"Plenty to do but no money," he said.

"How's that?" I asked.

"We spend most of the time servicing the I. W. W."

"And who are the I. W. W.?"

"The motorists wanting Information, Wind and Water."

USE PORTABLE LABORATORIES TO CHECK GASOLINE QUALITY

After two years of use, the department of finance and taxation in Tennessee has found that the portable testing laboratories are an efficient and effective method of preventing the sale of inferior gasolines. The operation of the laboratories is under the direction of Jordan Stokes 3d of the excise division.

A competent technician operates each portable laboratory and takes samples for all official tests directly from the pumps dispensing the gasoline at retail. The state department finds it necessary to secure samples from the last agency that serves the public in order to check accurately the quality of the fuel actually consumed by the motor vehicle owner.

When the gasoline is found to be off test, placards are immediately posted at the station and they are not removed until the objectionable fuel is replaced. Some of the placards used read as follows: "This Gasoline Contains Dirt and Other Suspended Matter," "This Gasoline Contains Kerosene and Has Been Condemned," "This Gasoline Is Not High Test Gasoline" and "This Gasoline Contains Water."

All samples to be run in any one day are gathered by each truck the first thing in the morning. As each sample is taken it is examined for water and suspended matter, containers being pint prescription bottles, screw capped, and made of good quality clear glass. If suspended matter, such as rubber, for instance, is found the hose is immediately examined. If found faulty its replacement is immediately required. Upon failure to replace the hose, placards are placed on each side of the pump warning the public that the gasoline contains suspended matter. Where water is found placards stating its presence are displayed if the condition is not quickly corrected. Data covering each sample are put down on a data sheet. One data sheet covers each station inspected and as each sheet is numbered it is only necessary to give each sample from the station a letter, such as A, B, C, etc., together with the sheet number. After the samples have been collected the testing truck proceeds to some convenient location nearby, such as a garage or filling station. Connection is made with the community lighting circuit and testing gets under way. Where electricity is not available bottled gas, carried on each truck, is used to furnish the heat required. Corrosion and distillation tests are made on each sample. Vapor pressure determinations are made on all gasoline having an unusually low recovery and 10 per cent point, but only occasionally on others. Corrosion tests are all run concurrently, each outfit having a capacity of 40.

If gasoline fails to meet the 90 per cent requirements, testing is stopped for the moment and the technician drives immediately to the offending station and seals placards on each side of the pump, stating that the gasoline contains kerosene. An investigation is made and gasoline tax and penalty is assessed and collected on the blending agent.

Failure to meet other requirements of the distillation specification is met by a placard, stating that the gasoline does not meet state specifications. In case of corrosion a placard stating that the gasoline is corrosive, is affixed, unless the corrosive quality is the result of a purely local condition, such as a dirty underground tank, in which case the condition is ordered corrected immediately.

High Test Gasoline

While the specification for regular gasoline is the same as the latest U. S. Motor, Tennessee also has high test specifications, promulgated in 1930. All gasoline must meet the high test requirements if sold under any description other than regular or plain or under some term relating exclusively to its antiknock qualities. Tennessee high test specifications now conform to the government specifications, Motor Fuel V. While this requirement is not exceedingly high, it has served to put a stop to the practice, formerly statewide, of advertising and selling bare U. S. Motor gasoline as high test, special, high speed, etc. In cases where gasoline is sold as high test and does not meet high test specifications, a placard is used that states simply "This Gasoline Is Not High Test."

As soon as any warning placard is sealed on a pump, the state highway patrolman, patrolling the road on which the station is located, is notified and he checks up from time to time to see that the placard is not obscured, defaced or torn down. Removing, covering, or tearing a placard carries a fine of $50 for each offense. All placards remain on pumps until the condition is corrected and an honest willingness to comply with the law is shown by the dealer. Upon being notified that the condition has been corrected the technician procures another sample and if the sample is found to be all right, removes the sign.

The selling or offering for sale a fuel that does not meet state's specifications carries a $50 fine for each offense. However, it is only in the rarest instance that criminal action has to be resorted to, either for tearing down placards or for selling inferior gasoline. The placards are such a source of loss to the dealer that his only thought is to bend all his energies and the means at his command to the end that his pump be quickly released of the sign that is wrecking his business. The great advantage of using placards in enforcing inspection law lies in the avoiding of criminal action and its consequent delays and loss of time. Under our method a sample is collected, tested, condemned and placards posted the same day and the dealer is thus afforded no opportunity to block or evade his punishment.

Truck Equipment

Each testing truck is equipped with two standard distillation outfits, one corrosion bath, one vapor pressure bath and three Reid bombs. In addition, flash cups (open and closed) and hydrometers are carried to test kerosene, naphtha and fuel oils for flashpoint and gravity. Flash tests are made in some convenient closed room rather than in the truck because of drafts. Bottled gas or alcohol is used to heat the flash testing apparatus.

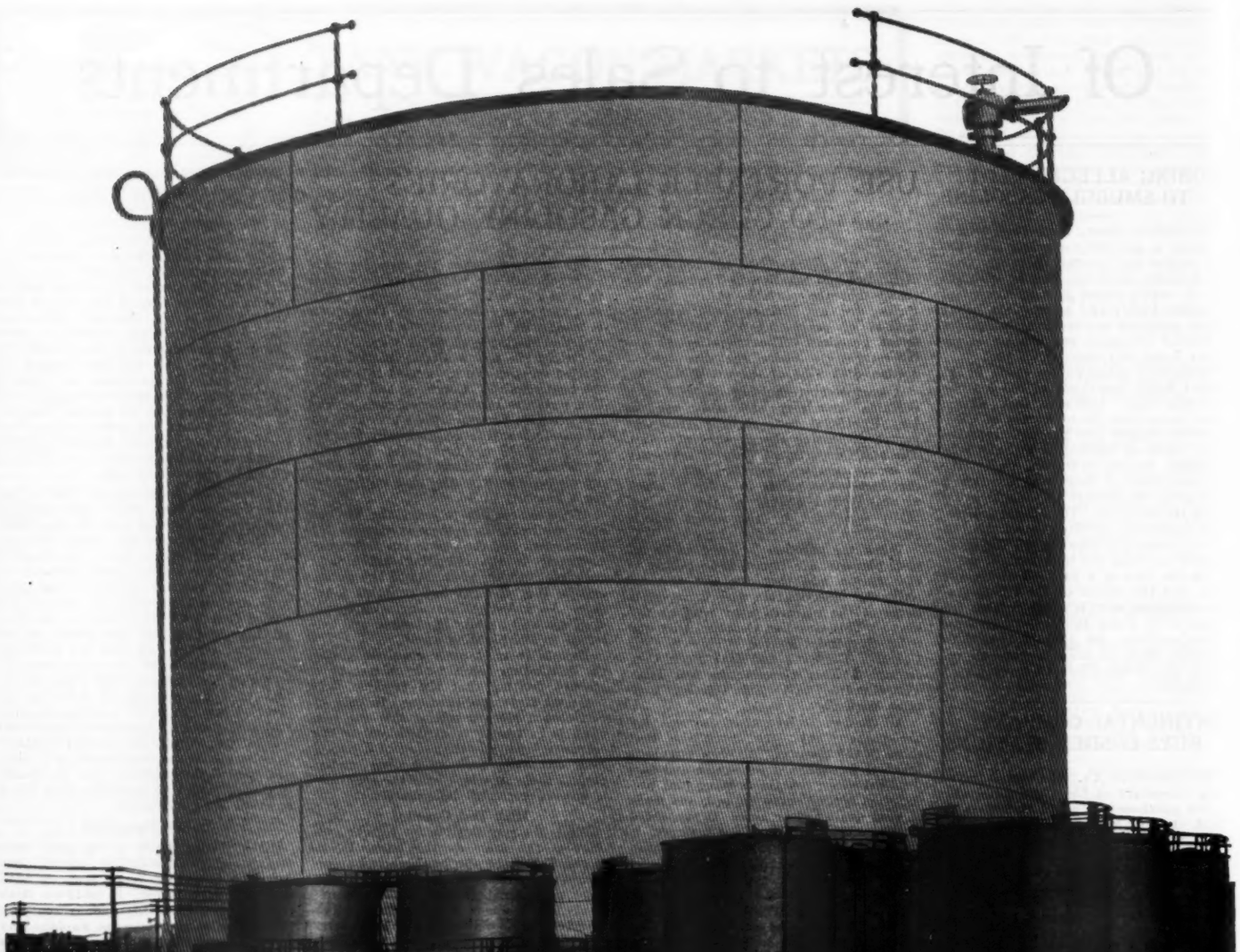
A completely equipped laboratory at Nashville runs sulphur and gum tests on gasoline at frequent intervals. Routine tests such as usually required by the trade are made on kerosene, naphtha, fuel oils, etc., at this laboratory. Samples are sent in by express.

A further use, probably unique, to which the Tennessee traveling laboratories have been put, is in identifying as such gasoline produced by temporary skimming plants or brought in by trucks or barge from adjoining states, and sold with a view of evading the gasoline tax. The inspection department has found that it is extremely simple to ascertain whether a questioned fuel was actually procured from a certain source or not. For example, dealers have attempted to deny bringing in gasoline by trucks from without the State or to deny buying from an irresponsible plant operator and have strictly maintained that all gasoline sold by them was purchased from a legitimate dealer and have exhibtied invoices unquestionably authentic. The department has proved conclusively that the gasoline in their tanks was markedly different in properties from the gasoline in storage or handled by the legitimate distributor from whom they claimed to have bought.

Portable testing laboratory used for testing purposes in Tennessee.

NEW RICHFIELD GASOLINE

Richfield Hi-Octane, manufactured by the Lachman vapor phase treating process, has been announced by the Richfield Oil Co. and is now on sale at all the Richfield service stations on the Pacific Coast. High antiknock properties are claimed for the gasoline.



Complete Farm, or single tank

McClintic-Marshall can meet your requirements promptly and satisfactorily, whether you need a single tank or a complete tank farm, whether the tanks are to be of Standard A. P. I. design or of special design.

In addition to tanks McClintic-Marshall builds all other items of steel-plate work used by oil refineries, including Floating Roofs, Distillation Plant Equipment, Gasoline Absorption and Stabilization Plant Equipment, Filter Plant Equipment and Stills, to customers' designs. McClintic-Marshall also builds Multiple-Lift and Pressure Gas Holders and Pressure Cylinders.

McCLINTIC-MARSHALL CORPORATION

Subsidiary of Bethlehem Steel Corporation

General Offices: Bethlehem, Pa.

District Offices in New York Boston Philadelphia Baltimore Pittsburgh Buffalo Cleveland Cincinnati Detroit Chicago St. Louis San Francisco Los Angeles

Export Distributor: Bethlehem Steel Export Corporation, New York City

McClintic-Marshall

Brief Items for Petroleum Refiners

Crawford Explains Operating Plan for P. & R. Corporation

In connection with the appointment of L. R. Crawford, president and P. C. Spencer, general counsel, as ancillary receivers for the Producers & Refiners Corp., announced last week, the following statement has been issued by Mr. Crawford regarding the future plan of operation:

"The Producers & Refiners Corp., in common with many other corporations, has found it impossible to meet its matured and maturing indebtedness at this time.

"The principal obligation of the company consists of New York bank loans in the amount of $10,000,000 which originated in January and February, 1924, and have been renewed from time to time during the past eight years.

"These loans matured on April 11, and the company was unable to pay or renew the same. The Prairie Oil & Gas Co. had indorsed and guaranteed these notes and Consolidated Oil Corp. having assumed all the obligations of the Prairie company, was forced to back the banks.

"In view of this obligation, and others which now are due or will be due shortly and which the company is unable to pay now, Consolidated Oil Corp. filed a bill in Wyoming asking the court to appoint receivers to take charge of the company's properties and assets for the benefit of all interested parties.

"It filed similar actions of an ancillary nature in Oklahoma and Kansas. The company's board of directors consented to the appointment of receivers, believing it to be the only practicable means available for protecting and conserving the interests of all its creditors and stockholders. The court has ordered the receivers to take charge of the company's properties and assets and to continue its business as a going concern.

"This was done for the purpose of preventing the dismemberment of its business and properties through individual suits and actions. It is our belief that the company's assets exceed its total indebtedness, provided the fair value of these assets can be realized upon by managing and disposing of them collectively as a going concern.

"It will be the purpose of the receivers who have been appointed to protect and conserve the properties and assets of the company, including its good will, for the benefit of the creditors and stockholders of the company."

J. T. COCHRANE ELECTED PRESIDENT OF COASTAL

At a meeting of the board of directors of the Coastal Petroleum Corp. held last week at Mobile, Ala., John T. Cochrane of Mobile was elected president of the corporation. He succeeds Victor H. Smith who resigned. E. D. Shaffer was elected secretary of the company.

The Coastal corporation last year built a refinery at Mobile, Ala., which started operating early this year. The management will continue the operations of the plant.

EMPLOYE OWNERSHIP PLAN

CHATHAM, Ontario, May 14.—The McColl-Frontenac Oil Co. at its annual meeting at Montreal recently authorized appointment of three trustees to purchase the company's capital stock up to 30,000 shares in the open market. The stock so purchased will be used to enable employes to acquire holdings in the company.

RAILROADS REDUCE RATES TO MEET COMPETITION OF TRUCKS

Substantial reductions in freight rates in the movement of petroleum products on short hauls in Oklahoma, Kansas and many points in Missouri are scheduled to become effective May 26. The new rates were authorized by the Interstate Commerce Commission on petition of railroads who sought to reduce their present rates to meet truck competition.

The reductions as shown in the accompanying table are greatest in the shortest hauls. The schedules are of special importance to a large number of Oklahoma and Kansas refiners including Kansas City, Mo., which ship to jobbers or to their own bulk stations within a radius of 150 miles of their refineries. Many of the companies have been forced to use trucks in order to reduce their delivered costs and it was stated that the use of the trucks would spread rapidly unless the railroads were permitted to reduce their rates.

The situation in Tulsa is representative of the conditions at several other refining and gasoline consuming points in the three states. With the present rates, the cost per gallon to ship gasoline by rail to Tulsa is as follows: Ponca City, 1.254 cents; Okmulgee, .957 cent; Oklahoma City, 1.122 cents; and Sapulpa, .825 cent. With the new rates the schedules will be as follows: Ponca City, .99 cent; Okmulgee, .66 cent; Oklahoma City, .99 cent; and Sapulpa, .495 cent. Three Tulsa refineries and one at Sand Springs also make shipments to a large number of points in Oklahoma and Kansas.

The new rates will not effect the present rates on fuel oil and gas oil which are to be further refined at the destination points. These rates are already lower than the proposed new rates. The new schedules also provide for reduction in the movement of natural (casinghead) gasoline.

The new rates are the same for both refined and heavy oils. They do not apply where more than two line hauls are involved. The distance is based via route movement and the Government's emergency rate of 1 cent per 100 pounds does not apply to the new schedules.

The new rates apply to natural (casinghead) gasoline on only one line shipment. The following table gives the present and proposed new rates (rates given in cents per 100 pounds):

		Present rates				
		Refined oils		Fuel and gas oil		
	New rates*	One line	Two or more lines	One line	Two or more lines	New rate casinghead gasoline*
10 miles	7	11	13	6.6	8.8	7
20 and over 10	7½	12⅛	14⅛	8.8	11	8⅛
30 and over 20	8½	13	15	9.9	12	9
40 and over 30	9	14	16	10.45	12½	10
50 and over 40	10	14½	16½	11	13	10½
60 and over 50	10½	15	17	11½	13⅛	11
70 and over 60	11½	16	18	12	14	12
80 and over 70	12	16	18	12⅛	14⅛	12
90 and over 80	13	16½	18½	13	15	12⅛
100 and over 90	13⅛	16½	18½	13	15	12⅛
110 and over 100	14½	17	19	13½	15½	13
120 and over 110	15	17	19	14	16	13
130 and over 120	16	18	20	14½	16½	14
140 and over 130	16½	18	20	15	17	14
150 and over 140	17½	18	20	15	17	14

*Scheduled to become effective May 26, 1932.

DANCIGER COMPANY TO OPERATE TWO PLANTS

The Danciger interests which have been active as independent producers in the Mid-Continent Field for the past 15 years, have completed plans to operate two refineries owned by the Petroleum Refractionating Corp., a subsidiary organization. The two plants are located at Pampa, Tex., and Longview, Tex.

The Pampa plant has been operated for several years by the Bell Oil & Gas Co. of Tulsa which also had charge of plant sales. Effective May 15, the Petroleum Refractionating Co. took over all phases of the plant operation. Dan Danciger is president of the corporation, Joe Danciger, Jack Danciger and A. Danciger, vice presidents, and J. E. Vaeth, secretary. Sales are in charge of A. F. Boudreau and H. B. Niece who will engage in a general marketing business as well as handle the sales of the two refineries. Earl C. Roff is superintendent of the refinery at Pampa.

The Pampa refinery is now refining 6,000 bbls. of crude oil daily. Part of this crude oil is obtained from leases of the Danciger Oil & Refining Co.

Starting next month the company expects to operate a 12,000-bbl. refinery located near Longview in the East Texas Field. This refinery which consists of a large topping unit was completed last year, was operated for a short period and then shut down due to marketing conditions. The Danciger interests have crude oil production adjacent to the refinery. The main offices of the company are located in the Hunt Building, Tulsa.

ELECT HAMILTON HEAD OF REFINERS' GROUP

D. P. Hamilton of the Root Refining Co., with headquarters in Shreveport, was elected president of the Louisiana-Arkansas Refiners Association at its annual meeting held there last week. He has been acting as first vice president.

Other officers selected: C. M. Lamason, Louisiana Oil Refining Corp. (Cities Service), first vice president; B. H. Gray, Spartan Refining Co., Shreveport, second vice president; R. R. Brinkman, Shreveport, treasurer, and Leon C. Grosjean, Shreveport, executive secretary (re-elected). Headquarters of the association will remain in Shreveport.

ASSOCIATED GETS BUS CONTRACT

The Associated Oil Co. has been awarded a large contract for gasoline, lubricating oils and greases, to be delivered to the Pacific Greyhound Lines., Inc., during the fiscal year. The contract became effective immediately and deliveries are now being made throughout the Pacific Coast territory. Pacific Greyhound is one of the largest operators of motor passenger-carrying buses in the United States, operating 418 motor buses over 7,750 route miles through seven western states.

Data Show Refinery Costs 13 Per Cent Of Total in Canada

CHATHAM, Ontario, May 14.—In connection with the report of George A. Touche & Co., auditors retained by the banking and commerce committee of the Canadian parliament to investigate the price of gasoline in Canada, interesting data have been made available regarding the relative cost of the various phases of petroleum operations.

Based on an audit of the books of the Imperial Oil, Ltd., largest refiner and marketer in Canada, the following division is given covering the operations of the Sarnia and Halifax refineries and all refineries of the company. Taking the total at 100 per cent the following divisions are shown:

	Sarnia Pct.	Halifax Pct.	All refineries Pct.
Cost of crude oil and other materials, including transportation	46.6	57.7	53.1
Refinery costs other than crude oil	15.0	12.8	12.7
Marketing costs, including transportation	38.4	29.5	34.2

The report declares that the high cost of marketing in the gasoline industry, like many other industries in Canada, is due principally to the three following factors:

"(a) Territorial spread of the country, which has been likened unto a 'shoe lace' and the resulting high transportation costs, due to comparative sparsity of population.

"(b) Climatic conditions also affecting the cost of transportation and selling overhead in the winter months.

"(c) Competitive conditions obtaining in the distribution and marketing of gasoline as may be evidenced by the many duplications of tank wagon deliveries and service stations in operation.

"As to the number of service stations owned and leased to operators by Imperial Oil, Ltd., in Canada, it should be noted that in 1927 they controlled 38 per cent of the total, while at the end of 1930 their control had dropped to 21 per cent of the total, indicating that in the matter of the construction of service stations, Imperial Oil, Ltd., did not keep pace with the development of service station facilities from 1927 to 1930.

"The average net profit on all gasoline was determined on the basis of the total profit divided by the total gallonage sold. A summary of the average net profit on all gasoline sold by Imperial Oil, Ltd., in 1930 is as follows: Sarnia refinery, 1.14 cents per imperial gallon; Halifax refinery, 1.40 cents per imperial gallon; all refineries, 1.01 cents per imperial gallon.

"The net gasoline profit at Halifax is higher than Sarnia principally because the Sarnia trade involves a great proportion of the whole business."

D. J. BAIZE TO EAST TEXAS

CHATHAM, Ontario, May 14.—Don J. Baize, refinery superintendent for Sterling Oil Refineries, Ltd., at Moose Jaw, Saskatchewan, has resigned his position, effective June 1. Mr. Baize is returning to the United States to accept a position in East Texas. During the past 18 months in Canada Mr. Baize has built two refineries, one for the Radio Oil & Gas Co. at Winnipeg, Manitoba, and the other for Sterling Oil Refineries, Ltd., at Moose Jaw.

O. B. Mails, formerly assistant superintendent for the Panhandle Refining Co., at Wichita Falls, Tex., will succeed Mr. Baize as superintendent of the Sterling plant at Moose Jaw.

Manufacture of Natural Gasoline

Commission Order Lowers Output of Texas Panhandle

Due to the restrictions made by the Texas Railroad Commission in regard to the production and utilization of natural gas including residue gas from plants, a reduction in natural gasoline output in the Texas Panhandle became effective May 15. It is estimated that the quantity of gas which will no longer be available for gasoline extraction in that area will be in excess of 100,000,000 feet daily which will mean a reduction in natural gasoline output between 50,000 and 60,000 gallons daily. The present output of the natural gasoline plants in the Texas Panhandle has been around 600,000 gallons daily.

The reduction in output will be distributed among several manufacturers with the Phillips Petroleum Co., the largest manufacturer, accounting for approximately 50 per cent of the reduced output. The bulk of the reduction will be in the wells which produce only natural gas.

The order of the Railroad Commission was made following hearings earlier in the year. The new rules which have direct bearing on the natural gasoline production are as follows:

Rule 1: All wells which are now producing natural gas only are hereby defined as gas wells and shall be closed in until such time as such natural gas shall be utilized for purposes and uses authorized by law and orders and permits of this commission under Article 6,008.

Rule 2: The flow or production of each well producing gas only shall be restricted to 25 per cent of its potential capacity, that is to say in any day of 24 hours no well shall be permitted to flow or produce more than 25 per cent of its potential capacity. This rule amends and supersedes General Rule 25.

Rule 3: Any volume of gas escaping into the air from wells producing both oil and gas from the same horizon shall be determined and reported monthly to the commission. All residue gas going into the air from casinghead plants shall be metered and reported daily volume of such gas and shall be reported monthly to the commission.

Rule 4: Not more than 10,000 feet of gas per barrel of oil shall be used in the operation of gas lift.

Rule 5: No new connection of wells to lines from gas to casinghead plants shall be made without first securing permission from deputy supervisor in charge of said district

SOUTHERN PLANT OPERATING

With the completion of the Southern Gasoline Co.'s absorption plant southeast of Seacliff, Calif., it now is handling gas from the Continental Oil Co.'s No. 1 Grubb, which is producing at the rate of 350 to 400 bbls. of oil per day.

Southern Gasoline's plant has a capacity of 50,000 cubic feet of gas per day, and may be increased through the addition of several units when Continental decides to drill new wells on the Grubb lease. The owner of the lease consented to a year's extension of the lease, which embraces 1,000 acres, and Continental is not obliged to drill again until May 15, 1933.

ENLARGING STABILIZING PLANT

E. I. Hanlon, chairman, and D. E. Buchanan, president, of Hanlon-Buchanan, Inc., of Tulsa, spent the past week in New Orleans going over plans for the enlargement of the company's natural gasoline stabilizing plant and export terminal at Good Hope, La.

OUTLINE PAST YEAR'S WORK OF GAS CONTRACTS COMMITTEE

By T. R. Goebel
Skelly Oil Co.*

One cannot speak of the activities of the gas contract committee of this association for the last year without unconsciously devoting the entire report to what has become known in the industry as the revised schedule of gas payments. This schedule in its formation, adoption and promulgation has so completely overshadowed everything else that has happened in the gas purchase end of the business in the last year that it seems only right to report upon it first of all.

I am sure no one need be reminded that when we had our last annual convention in this room that sales price of our manufactured product was about 1½ cents a gallon. For the 12-month period before that it had been 4½ cents per gallon. Even those of us who had been inclined to optimism felt the imperative urge to do something about the cost of our raw material and so it happened that almost everyone connected with the gas buying end of the business set about evolving what to him seemed the proper schedule to use in buying gas. As a result, there were almost as many schedules suggested and discussed as there were people to suggest and discuss them. Most of these proposals were intended to be merely temporary in their application. Gradually out of the chaos resulting from this deluge of ideas and schedules there arose a schedule which seemed to fulfill most of the essentials of a price revision in our contracts in a reasonable workable fashion. This committee did not "make" this schedule any more than it "made" the schedule of prices in the standard N.G.A. form of contract. It merely recognized after an exhaustive study that changed conditions had of themselves brought about a new approach to the problem of price of our raw material.

In our report last year we mentioned that there was nothing unchangeable or fixed about our N.G.A. form of casinghead gas contract. That, in the face of distinctly changed conditions in our industry, we would certainly endeavor to bring our contract in line in accordance with such conditions. We, therefore, looked with great favor upon this new series of prices. It was the first time that sales price of our finished product pertinently regulated the percentage of gasoline contained in the gas that was attributable to the seller. Heretofore it had usually been the gasoline content of the gas that alone regulated this percentage. The new schedule endeavored to bring both factors (that is, sales price of casinghead gasoline and gasoline content of the gas) into harmonious play. That this was necessary is proven if one merely reflects that for the year commencing May, 1930, and ending April, 1931, average sales price in this area was about 4 cents per gallon and for the next ensuing 12-month period sales price was about 3 cents per gallon. One cannot help but agree it was high time something was done.

The revised schedule recognizes three classes of gas: First, that having less than .75 gallon gasoline per 1,000 feet; second, that gas having .75 gallon gasoline per 1,000 feet but less than 1.75; and, third, gas having 1.75 gallons gasoline per 1,000 feet or more. It also recognizes four classes of sales price per gallon of casinghead gasoline, namely, under 2 cents, 2 to 4 cents, 4 to 6 cents, and 6 cents or above. The lowest price paid for gas under this schedule is 5 per cent and the highest is 33⅓ per cent. Should gas be delivered by seller to buyer under adequate well pressure for buyer's needs and buyer be in position to utilize such character of gas, and does, then seller receives an additional 5 per cent for such service.

The schedule stated in tabulated form is included here:

Sales price of casinghead gasoline	Less than .75 gallon %	.75 to 1.75 %	1.75 or above %
Under 2 cents	5	10	15
2 to 4 cents	10	15	20
4 to 6 cents	15	20	25
6 cents or above	20	25	33⅓

It will be seen that there is nothing makeshift or temporary in this schedule; that it fits perfectly into our N.G.A. standard form of contract as and when sales price of casinghead gasoline reaches 6 cents per gallon.

Effective last July the great majority of all existing casinghead gas contracts were amended from whatever their price provisions had previously been to the price provision just discussed that has become known as the revised schedule. It is no exaggeration to say the casinghead gasoline industry has saved $2,000,000 in the State of Oklahoma alone through the use of the revised schedule of prices. If one includes the States of Texas, Kansas, Arkansas and New Mexico as one should logically do, the total savings to the industry is likely to be close to $4,000,000 annually.

The gas contract committee has watched the course of the revised schedule of prices very carefully. It seems to have become an integral part of virtually every contract written in the Mid-Continent area. In fact, I believe a great number of contracts in virgin territory have used the revised schedule in their N.G.A. form of contract. At a number of our committee meetings we considered the advisability of recommending the inclusion of the revised schedule in our standard form of contract. It was not, however, until January 12, 1932, that we definitely came to the conclusion to so recommend to our board of directors and we thereupon adopted the following resolution: "Since the industry has generally accepted and is using a revised schedule for royalty payment, the gas contract committee recommends the adoption of such revised schedule by the association and its inclusion in our standard casinghead gas contract form." No definite action has as yet been taken on this matter by the board of directors. So interwoven in all of our association with royalty owners, federal and state agencies, tax commissions, and the industry generally, has the revised schedule become, that its adoption by the association seems an important and imperative act.

*Before annual meeting Natural Gasoline Association in Tulsa, May 17-19.

NATURAL GASOLINE PRODUCTION 21 PER CENT BELOW LAST YEAR

Natural gasoline production in the United States continued to decline in March according to the latest report of the Bureau of Mines announced the past week. The average daily production in March was 4,330,000 gallons, which was a 5 per cent decrease when compared with the 4,560,000-gallon average in February.

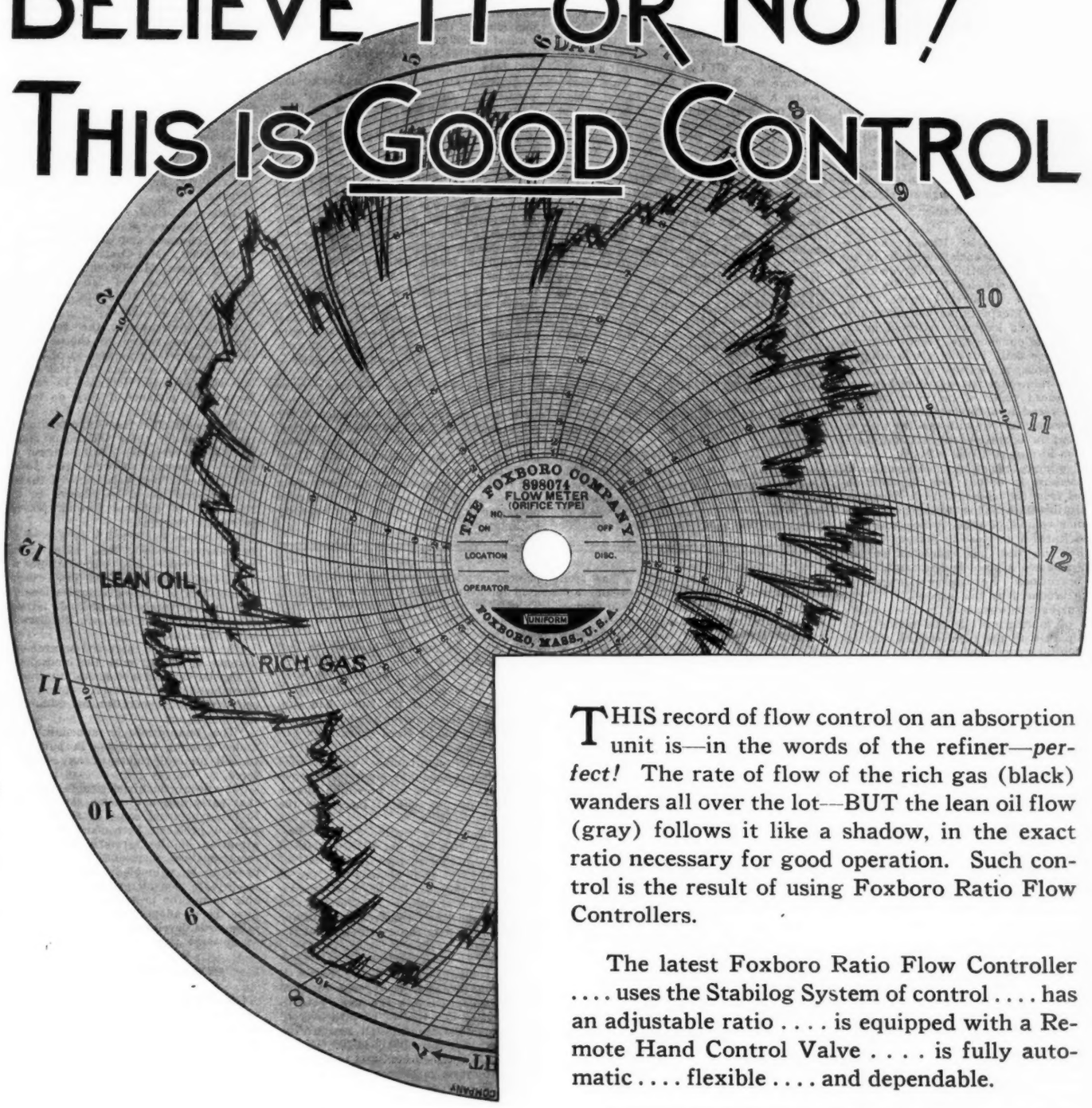
The March production was the lowest since September, 1931. The decline in production was fairly general throughout the country with the largest decrease being recorded at Kettleman Hills. Stocks of natural gasoline both at the plants and at refineries have increased rapidly in recent months due to the decreased demand. In February stocks of natural gasoline at the plants increased from 36,763,000 gallons on hand the first of the month to 39,778,000 gallons on March 31.

The March production for the United States was 21 per cent less than that of March, 1931. Oklahoma production showed a decrease of 24 per cent, Texas 23 per cent and California 21 per cent. Part of the decrease reflects a decline in the production of casinghead gas and the remainder of the decline is due to the fact that a large number of plant operators are stabilizing their output to low vapor pressures with a resulting decline in output of finished gasoline. The March production was 35 per cent less than the peak production of 206,300,000 gallons in October, 1929.

The following table summarizes the government report for March, 1932, with comparisons for February, 1932, and March, 1931 (data in thousands of gallons):

	Natural gasoline: Production Mar., 1932	Production Feb., 1932	Production Mar., 1931	Stocks end of month Mar., 1932	Stocks end of month Feb., 1932	Blended motor fuel March, 1932: Natural gasoline used	Naphtha or other oils used	Stocks end of month
Appalachian	7,800	7,200	8,400	6,328	4,852	43	49	152
Ill., Ky., Ind.	800	600	1,000	760	311	..	..	...
Oklahoma	33,200	33,600	43,700	12,445	12,131	26	65	33
Oklahoma City	6,900	6,500	4,400	2,337	1,677	..	..	...
Osage County	4,100	4,000	5,900	1,852	2,617	2	2	3
Seminole	10,000	10,400	17,400	3,955	3,490	1	..	1
Rest of State	12,200	12,700	16,000	4,301	4,347	23	63	29
Kansas	2,300	2,400	2,900	1,197	965	12	..	13
Texas	30,400	30,100	39,400	10,253	9,746	27	..	4
Panhandle	15,200	14,900	18,400	4,249	4,283	..	..	...
North Texas	2,200	2,200	3,600	1,106	999	4	..	3
West Central	7,700	7,600	11,500	3,843	3,373	23	..	1
Rest of State	5,300	5,400	5,900	1,055	1,091	..	..	...
Louisiana	4,400	4,400	4,900	1,408	1,341	18	9	8
Arkansas	1,700	1,700	2,600	248	221	..	..	7
Rocky Mountain	4,900	4,700	5,300	661	688	..	..	...
California	48,800	47,500	61,800	6,478	6,508	..	..	..
Huntington Beach	1,500	1,400	2,000	...	...	..	..	...
Kettleman Hills	11,800	12,400	14,600	...	...	..	..	...
Long Beach	9,800	8,900	13,400	...	...	..	..	...
Santa Fe Springs	8,600	8,500	11,200	...	...	..	..	...
Ventura Avenue	3,600	4,200	5,100	...	...	..	..	...
Rest of State	13,500	12,100	15,500	...	...	..	..	...
Total	134,300	132,200	170,000	39,778	36,763	126	123	217
Daily average	4,330	4,560	5,480	...	...	4	4	...
Total (1,000 of bbls.)	3,198	3,148	4,048	947	875	3	3	5
Daily average	103	109	131	...	...	..	..	...

BELIEVE IT OR NOT! THIS IS GOOD CONTROL



THIS record of flow control on an absorption unit is—in the words of the refiner—*perfect!* The rate of flow of the rich gas (black) wanders all over the lot—BUT the lean oil flow (gray) follows it like a shadow, in the exact ratio necessary for good operation. Such control is the result of using Foxboro Ratio Flow Controllers.

The latest Foxboro Ratio Flow Controller .... uses the Stabilog System of control .... has an adjustable ratio .... is equipped with a Remote Hand Control Valve .... is fully automatic .... flexible .... and dependable.

Many difficult refining problems can be solved with Ratio Flow Controllers. Write today for complete information.

Ratio Flow Control is discussed in our bulletin No. 170— "Flow Control"

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

THE FOXBORO COMPANY
Neponset Avenue, Foxboro, Mass., U. S. A.
BRANCH OFFICES IN PRINCIPAL CITIES

● ● Guaranteed Refinery Control Results ● ●

TEAGLE SEES OIL AS LEADER IN RECOVERY

(Continued from Page 22)

of gathering lines were laid. Trunk line capacity, which was 20,000 bbls. a day at the beginning of the year, was increased so that the Humble Pipe Line Co. is now in a position to move 150,000 bbls. per day out of the East Texas and Van Fields. Of this capacity, 90,000 bbls. reach the Gulf via the Standard Pipe Line Co. system from Shreveport to Baton Rouge. Most of the remainder moves to Baytown via the Humble's own system. Equipment of part of the Oklahoma Pipe Line Co. system was changed to make it possible to move crude oil from Texas, Louisiana and Arkansas north into Oklahoma and from there east through the Ajax.

Manufacturing

"With a larger share of European consumption supplied by Russia and Rumania and a substantial decrease in the consumption of petroleum products in many foreign countries, United States exports declined to a marked degree. While the company's exports did not suffer proportionately, a loss was reflected in the operation of our domestic plants, in which the average daily runs of crude oil were 336,148 bbls., a decrease of 8 per cent. Part of this reduction was due, however, to increased yields of the more valuable products and to a further draft on product inventories. Notwithstanding the curtailment in operations a substantial reduction in unit cost was effected.

"The improvement was accompanied by an increase in output per man-hour obtained from the modernized equipment recently installed. This, together with the smaller volume of crude which was run, necessitated a decrease in personnel.

"For the first time hydrogenation last year assumed a place in our manufacturing operations. New motor oils are now being produced by this process.

"Further improvement in the quality both of lubricating oils and motor fuels kept pace with the requirements of present day high compression motors. Capital expenditures in the domestic refineries were curtailed without impairing efficiency of equipment or operations. Replacements of older types of equipment already provided made this possible.

"In our foreign refineries in Canada, Cuba, Trinidad, Venezuela, Colombia, Peru, Argentina, Norway, Poland, Italy, Rumania, England and the Dutch East Indies, 132,522 bbls. of crude were run daily as against 131,378 bbls. in 1930.

Domestic Marketing

"There were no fundamental changes in the factors which have militated against a reduction in the cost of retailing petroleum products. The evils inherited from previous years continued to exert their influence. While some companies restricted refinery runs to market demands, the fact remains that gasoline in storage increased during the year. With excessive stocks hanging over the market, widespread price cutting was inevitable and resulted in reducing the wholesale price below a proper relationship to the cost of crude, even at the depressed price of the raw material. Enforced operating economies and close scrutiny of new capital investments checked to some degree the further tendency toward unnecessary duplication of both retail and wholesale distributing stations. Nevertheless, the pressure to move surplus stocks further intensified the wasteful struggle to secure the maximum gallonage at existing stations, at the expense of prices.

"Public authorities have not yet awakened to the vicious consequences following in the train of exorbitant gasoline taxes, now ranging from 2 cents a gallon to 7 cents. Dishonest distributors easily evade payment of these levies, pocketing part of the money and using the balance to undersell as a means of increasing their business. Not only stockholders in oil companies but the general public are losing millions of dollars annually through this increasingly practiced fraud. It is manifestly impossible for a reputable company to pay a tax equivalent in many states to the wholesale price of the gasoline and compete with those who evade payment. In certain states it has been demonstrated that a larger revenue was derived from a three-cent tax than from a higher rate, which not only serves to encourage the racketeer, but reduces consumption.

"To render a more complete service to motorists at our stations, sales of automobile tires and essential accessories were developed. This contributed to a more complete utilization of existing plant investment. The tire business has now attained a substantial volume and the companies have also made considerable progress in the distribution of batteries, lamp bulbs, spark plugs and other specialties which can conveniently be merchandised.

Foreign Conditions

"Demoralization of commercial balances, leading to the abandonment of the gold standard by Great Britain and restrictions by various governments against the purchase of exchange in settlement for imports, uncertainty as to the fulfilment of obligations to the United States, and a wave of tariff legislation all tended to impede international trade. Some countries have been unable to accumulate sufficient credits abroad to pay for their imports, and others may find themselves in the same position in the not distant future. This not only impairs American export trade, including petroleum products, but threatens the very economic life of such countries as cannot import commodities vitally necessary to their welfare.

"In South America political unrest aggravated a disturbed economic situation. Exchange control commissions in Argentina, Uruguay, Brazil and Chile interfered with normal transfers of funds. The necessity of curtailing credits coupled with the general depression had a decidedly adverse effect on sales. In Central America and the West Indies the volume of business was maintained but at lower realizations because of falling currency values.

Employment of Cash Reserves

"For many years the company paid a conservative dividend and financed most of its capital needs out of the remainder of current earnings, thus building up a substantial surplus. The depression emphasized the overbuilt condition of the industry, indicating that further investment of cash for expansion would result in needless duplication of facilities. Under present conditions company stock may be used for acquisitions to better advantage. This made possible the use of the company's surplus for the following purposes:

"It was decided in November to call for payment on February 1, 1932, one-quarter of the issue of $120,000,000 or 5 per cent debentures, since one-quarter of the 20-year term of the bonds had run, and to take the required funds from surplus, thus reducing fixed charges by $1,500,000 a year.

"Favorable opportunities were availed of to purchase company stock in the open market as a means of providing shares for corporate use without increasing the amount outstanding.

"Dividends were continued at the previous rate, although not earned, with a resulting draft on surplus during 1931 of $42,500,677.96. It is obvious that use of earnings of the past for payment of dividends cannot continue indefinitely and that there must be an improvement in our business to justify the continuance of the present rate.

Taxes

"The company would have been well pleased in the past two years to have been allowed to retain the sums paid in taxes and in lieu thereof to turn over to the various governments all net profits. Taxes last year were $60,654,540. Of this, $35,751,835 was collected and paid to the several states on gasoline sales. The ever-increasing burden of taxation upon business and individuals is a serious obstacle to the restoration of prosperity. Reform in governmental extravagance promises to be slow and difficult, but it must be achieved.

Stockholders

"At the close of the year the company had 127,041 shareholders, of whom 75,417 were men, 45,900 women and 5,724 institutions, trust funds, estates, etc. A year earlier there were 111,960. At the dissolution in 1911 the number was 6,078."

BUREAU OF MINES REPORT FOR THE MONTH OF MARCH

According to reports received by the Bureau of Mines, Department of Commerce, the production of crude petroleum in the United States during March, 1932, amounted to 67,189,000 bbls., a daily average of 2,167,000 bbls. This represents a slight increase (12,000 bbls.) over the daily average of February, but is 72,000 bbls. below the daily output of March, 1931. Production declined in practically all the major fields in March, the most notable exception being East Texas, the largest field. The daily average output of East Texas rose from 312,000 bbls. in February to 340,000 bbls. in March. The number of oil wells completed in East Texas in March, 1932, amounted to 373, the highest monthly total so far recorded in the current year. However, local field reports indicate that the total initial output of these wells (1,007,100 bbls.) was slightly below that of February and the average initial per well per day declined to 2,700 bbls. from 3,100 bbls. in February. The daily average output in California continued to hold at just above the 500,000-bbl. mark. Daily production in Oklahoma, the third-ranking State, remained virtually constant in March, although the output of the Oklahoma City Field showed a material gain.

Stocks of crude petroleum increased 2,466,000 bbls. during the month. This was due entirely to gains in inventories of foreign crude as stocks of domestic crude were drawn on to the extent of about 700,000 bbls.

Runs to stills of crude petroleum again showed little variation from the previous month; the daily average in March totaled 2,209,000 bbls. compared with 2,201,000 bbls. in February and 2,217,000 bbls. in January.

Activity at cracking plants was less pronounced than in February and the daily average output of motor fuel declined to 1,044,000 bbls. from 1,093,000 in February. Daily average imports were lower, daily average exports were unchanged from February. The indicated domestic demand for motor fuel in March amounted to 29,451,000 bbls., a daily average of 950,000 bbls. This represents an increase of 8.7 per cent over the daily average of February but is 4.3 per cent below March a year ago. Stocks of motor fuel on March 31 totaled 62,290,000 bbls., or practically 1,000,000 bbls. more than stocks on hand at beginning of the month. At the current rate of total demand, the March stocks of motor fuel represent 60 days' supply, compared with 64 days' supply on hand the previous month and 44 days' supply on hand a year ago.

The refinery data of this report were compiled from schedules of 344 refineries, with an aggregate daily recorded crude oil capacity of 3,617,990 bbls., covering, as far as the bureau is able to determine, all operations during March, 1932. These refineries operated during March at 61 per cent of their recorded capacity, given above, as compared with 338 refineries operating at 60 per cent of their capacity in February.

POOLED OIL LEASES URGED ON FARMERS

WASHINGTON, D. C., May 16.—America's farmers are urged by the Bureau of Agricultural Economics to consider the question of pool development of mineral rights and are warned against disposing of them for an inadequate consideration.

Tentative suggestions for organization of co-operative pools were set forth by the bureau in a voluminous report to the Senate in answer to a resolution sponsored by Senator Thomas (Democrat), Oklahoma.

The report estimated that 1,105,500,000 acres of possible oil land remain in the country, more than half of it farm acreage.

This was divided by sections as follows: Eastern states, 180,000; Kentucky, Tennessee and southeastern states, 149,000,000; Mid-Continent and north central states, 248,000,000; Texas, Louisiana, Arkansas and Mississippi, 241,500,000; Rocky Mountain and Pacific Coast states, 287,000,000.

While unorganized, the report said, "farmers are forced to choose between the risk of getting nothing at all" if they do not lease or sell, and "the risk of parting with potential fortunes in exchange for a mere pittance if they do lease or sell."

The report cited the Osage pooling system set up for those Oklahoma Indians by the government, adding there were many differences between the Indians and farmers, "but it is believed that the general idea" could be adopted to meet the needs of farmers owning potential petroleum reserves.

Authorities conferred with agreed that co-operative pooling held many advantages, the report said, but continued:

"A further study of the practices and possibilities of pooling organizations representing privately owned lands is necessary before the subject can be discussed with any finality."

The report also discussed several other systems of dealing with the lands.

The bureau did not make any specific recommendation, however, contenting itself with this observation in summing up its conclusions:

"The temptation is unusually great under existing conditions in agriculture to sell mineral rights at any price offered.

"It appears highly desirable, therefore, that early action of some sort be taken to bring at least some of the more important problems here considered to the attention of the farmers and to warn them against disposing of what may prove to be valuable mineral rights for inadequate considerations, before available means for protecting their interests have been adopted or such additional safeguards developed as may be necessary to conserve those interests."

INTERNATIONAL-STACEY

COLUMBUS, Ohio, May 16.—Reorganization of the International-Stacey Corp. is being effected and a new board of directors, representing principal creditors, has taken office. New directors include B. S. Wellman, Roger Williams and S. H. Barrett, all of Columbus; Lewis J. Brown of Battle Creek, Mich., general manager; A. A. Corcoran of Cleveland and O. M. Havekotte of the Carnegie Steel Co.

International-Stacey was formed a year ago with the merger of the Stacey Engineering Co. and the International Derrick & Equipment Co. The Stacey Engineering Co., a holding company, owned controlling interest in the Stacey Gas Construction Co., the Stacey Manufacturing Co., both of Cincinnati, the Connersville Blower Co. and the P. H. & F. M. Roots Co., of Connersville, Ind.

C. J. UNICE DIES

HOUSTON, Tex., May 16.—Charles J. Unice, Houston independent oil operator, died in Dallas, May 13, while there on a business trip. Mr. Unice has been operating on the Gulf Coast since 1914. He was 52 years old.

DIED FROM INJURIES

Isaac Don Headrick, 34, of Weatherford, Tex., died in Kilgore, Tex., on May 13, of injuries received when a plank fell from a derrick on a well near Gladewater, knocking him into the drilling machinery.

Stabilization of Export Market Is Near

Absorption of Surplus Russian Production Considered at Initial Session of World Conference in New York. Rumania Next

By A. E. Mockler

NEW YORK, May 17.—Stabilization of export petroleum markets through the absorption of surplus Russian production by major units in the industry was considered at the initial general session of the world petroleum conference here, it was unofficially learned today. No formal announcement regarding the meeting's activities is looked for until the conclusion of the conference, which is expected to occupy the remainder of the week.

The tentative plan for orderly absorption of Russian exports under the proposal discussed at the meeting, it was reported, would run for 10 years and exports by the Soviet would be limited during each of these years to a maximum of approximateiy 37,500,000 bbls., which was the total exported by the Soviet last year.

Disposal of Russian oil exports was considered only for markets outside of the United States, with the companies to participate in the plan to be allotted fixed quantities of Soviet oil, the allotment to be based on the percentage of markets controlled by each. Fayment, it is expected, would be based on the world market level to be determined by the prevailing price at the United States Gulf or some other designated "free market."

In addition to the foreign oil men at the meeting here, practically all of the principal American oil companies engaged in export operations were represented at the gathering.

Successful culmination of the negotiations for regulating the disposal of Russian petroleum exports in world markets will probably be the forerunner of a world cartel plan to take in the entire world oil market outside of the United States, it is indicated.

No settlement of the Russian question can be arrived at without a contemporary adjustment of the equally troublesome problem presented by Rumania, and this in turn leads discussions of world curtailment.

Soviet representatives here for the conference have emphasized the fact that their understanding of the purpose of the present series of meetings go far beyond the question of Russian marketing alone, and for this reason informed oil quarters believe that while Russian marketing may indeed prove to be the only major problem settled at the New York meeting, further conferences will be held abroad, with the Rumanian situation to be promptly adjusted following any agreement on Russia, and with the weaknesses in the world industry's marketing system thus cleared up, impetus to the world curtailment proposal will be a natural sequence.

The proposals of J. B. Aug. Kessler, joint managing director of the Royal Dutch-Shell combine, for a world accord on crude oil production have received considerable support abroad, and indications are that his plan will be pressed further on the world oil industry at a meeting to be held later on in the year, probably in London.

Late Fields

OKLAHOMA

New operations announced over the week-end include the following locations in Pottawatomie County: Denver Producing & Refining Co.'s No. 1 in the NW cor. SW, Section 30-6-5, east of the new producing well recently completed in Section 25-6-4. Arrow Drilling Co.'s No. 1 in the NE cor. SE SE, Section 26-6-4, is a location.

H. H. Taylor and others' No. 1 in the NE cor. SW, Section 28-7-8, is a new location in Hughes County, about 2 miles east of the Fish Pool.

Anderson and Kerr's No. 2 Wilhoit, NW cor. NE NE, Section 10-11-3w, on the west side of the Oklahoma City Field, flowed 730 bbls. of oil in 1 hour and 20 minutes from the Wilcox sand at 6,286-6,388 feet. The gas was estimated at 7,000,000 feet a day.

Production of the Oklahoma City Field for the 24 hours ending Sunday, May 15, was 107,200 bbls. from 172 wells; May 16, 56,938 bbls. from 123 wells, and May 17, 128,227 bbls. from 163 wells.

Marion Oil Corp.'s No. 1 Roope, SE NW NW, Section 10-11-3w, Oklahoma City Field, got Wilcox sand at 6,363 feet and at 6,503 feet was still in sand. It flowed 1,401 bbls. in 1 hour and 5 minutes.

The Carter Oil Co.'s No. 1, SW cor., Section 35-7-4, Pottawatomie County, which opened the pool south of the St. Louis Pool, dropped to 60 bbls. per day. Tubing was being pulled and the well will be given a swabbing test.

The Sovereign Oil Co.'s No. 1 Selacek, in Section 3-12-5, Lincoln County, got the Simpson dense at 4,490 feet and at 8 feet in the hole filled 600 feet with heavy black oil coming from the base of the Viola lime.

Frank Janoby of Oklahoma City has made a location in the SE NE SE NE, Section 4-8-5e, west of Carr City, Pottawatomie County.

KANSAS

Derby Oil Co.'s No. 1 Rainbow, in Section 33-22-7w, a wildcat test in Reno County, cored the Wilcox sand at 3,877-94 feet with no saturation of oil. A showing of oil was found in the Viola lime. The test is being drilled deeper to the Siliceous lime.

Magnolia Petroleum Co.'s No. 1 J. Stucky, SE cor. NE NE Section 28-20-3w, was spudding. It is three-quarters of a mile north of production in the Voshel Pool, McPherson County.

Skelton and others have made location in C SW SW SE Section 12-12-15w, Russell County.

Slick and others have made location for No. 1, C SW SW NW Section 7-17-10w, in Ellsworth County.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., May 17.—Smith & Capp's No. 2 Duval County Ranch Co., Survey 574, Duval County, which opened a new oil pool 2 miles southwest of Government Wells extension field, was connected with Humble pipe line Sunday and gauged at rate of 2,100 bbls. daily on three-quarter-inch choke, 1,290 bbls. on five-eighths-inch choke and 729 bbls. on half-inch choke with no water. Suttle and others' No. 1 Bennett, 3 miles north of Government Wells Pool, which went over crown block on drill stem test Saturday, indicating another new pool, started running casing today.

Eastern Division of Production Exchanges Technical Knowledge

By Special Correspondent

WELLSBORO, Pa., May 14.—This city, the center of the Tioga gas field, was host to many of the leading natural gas men in the eastern fields yesterday and today during the spring meeting of the American Petroleum Institute's Eastern division of production.

The election of officers for 1932-33 closed the main session Friday evening. A nominating committee of Frank Brewster, Bradford, Pa.; Virgil Bowyer, Wellsboro, Pa., and E. H. Tollefson presented the following slate which was accepted by unanimous ballot:

Chairman, J. G. Montgomery, Jr., United Natural Gas Co., Oil City; vice chairmen, L. G. Huntley, Huntley & Huntley, Pittsburgh; H. H. Phillips, T. W. Phillips Oil & Gas Co., Butler; H. H. Hill, Standard Oil Development Co., New York City; K. B. Nowels, Forest Oil Corp., Bradford; secretary-treasurer, J. H. Newlon, Philadelphia Co., Philadelphia. Members of advisory committee: K. C. Heald, chairman, Gulf Oil Corp., Pittsburgh; J. B. Corrin, Hope Natural Gas Co., Pittsburgh; P. H. Curry, South Penn Oil Co., Pittsburgh; Forest D. Dorn, Forest Oil Corp., Bradford; F. N. Speller, National Tube Co., Pittsburgh; Paul D. Torrey, Torrey, Fralich & Simmons, Bradford; S. J. Brendel, Penn United Gas Co., Pittsburgh; Don Wilson, Columbia Gas & Electric Corp., New York City; Frank Schauer, Equitable Gas Co., Pittsburgh; J. B. Tonkin, Peoples Natural Gas Co., Pittsburgh; S. W. Meals, Carnegie Natural Gas Co., Pittsburgh; E. F. Clagett, Pure Oil Co., Saginaw, Mich.; J. R. Reeves, Cities Service Corp., Elmira, N. Y.; C. C. Reed, Hope Natural Gas Co., Clarksburg, W. Va.; R. W. Gallagher, East Ohio Gas Co., Cleveland, Ohio.

General Session

Following the banquet Friday a general session was held in the Bache Auditorium which was devoted to papers and discussion of production, engineering and geological subjects. J. French Robinson of the Lycoming Natural Gas Co. presided.

Dr. K. C. Heald of Pittsburgh, chief of research for the Gulf Oil Corp., presented a paper on "Geophysics and Its Practical Application." Doctor Heald compared methods, effectiveness and costs of three major systems of geophysics and explained the actual meaning and worth of geophysics as a science.

It was the urge to secure geological information in areas where surface and subsurface conditions were such that the geologist was ineffective that led to the application of geophysical methods to oil and gas prospecting, he stated.

Doctor Heald said that the geophysical methods in no way modified the fundamentals of oil finding as laid down in the development of the anticlinal theory, which is, in essence, that oil or gas tend to move through porous formations from regions of higher to regions of lower pressure and where its movement is arrested,

High Spots in Field News

SOUTHWEST TEXAS

Government Wells extension is again extended. New well made 500 bbls. in 6 hours. Many new locations made in Southwest.

OKLAHOMA

Oklahoma City declines 19,000 bbls. and whole state 14,000 bbls. Renewed activity in southern area. Showing in Washita County.

GULF COAST

New interest in Montgomery County. Unusually good well completed at Barbers Hill. Rabbs Ridge extended. New activity at Hull.

CALIFORNIA

Outlook for curtailment better. Independents would be in charge of work with general committee representing individual fields.

WEST AND NORTH TEXAS AND PANHANDLE

Andrews County production extended a mile. Wildcat test in Borden County. Five locations in Ranger area and three in Panhandle.

KANSAS

Good wells in new fields in Kansas. Stratman Pool and Johnson Pool in McPherson County in limelight. Ritz-Canton allowable increased.

NORTH LOUISIANA AND ARKANSAS

Seven wildcat failures reported. Arkansas deep test abandoned. Wildcatting in North Louisiana continues. Dry holes in East Texas border.

ROCKY MOUNTAIN AREA

Ohio Oil Co. to test State of Washington. Resumption of drilling in Lea County, New Mexico. New locations in Greasewood Field, Colorado.

EAST TEXAS

Bids submitted for Sabine river bed leases. State court restrains pipe line company on excess oil and Federal Court issues injunction against railroad commission. Allowable now 59 bbls. Over 150 new locations.

oil or gas pools form. Favorable structure, a suitable reservoir rock or "pay" and an adequate source for the oil or gas are three primary requisites for a pool.

Varied Uses of Geophysics

Although at first, he said, geophysical methods were used to determine structure whose existence was either unknown or only suspected, the greatest present use of this system is on structures found by other methods which present puzzling problems to geologists. No method, or combination of methods is uniformly effective, he said.

He then engaged in a technical discussion of the various phases of seismic methods of gas or oil prospecting with the relative costs running into many thousands of dollars. These were the subject of later discussions by those following him.

Reflection Method

Following Doctor Heald's paper, J. G. Brooks of the Humble Oil & Refining Co. of Houston, Tex., discussed the reflection method, one of those described by Doctor Heald, of seismograph tests and its application to the Tioga, Pa., field.

Frank Brewster of the Belmont Quadrangle Co. followed with another discussion of the keynote topic stating that seismograph tests usually precedes a leasing campaign but in the case of the Tioga and other nearby fields was being used to condemn acreage already taken. In conclusion he stated that it was necessary to supplement the work of the seismograph tests in locating structures with the work of geologists due to the relation of surface and subsurface geology.

Thurman Meyers of the Penn United Gas Co. discussed the application of the reflection methods of seismograph tests seeking anticlinal structure in Tioga Field operations. He stated in part that the work was of great value and that it gave knowledge of structure that could not be gained in two years of drilling. He explained that seismograph tests gave definite knowledge of the field and eliminated many dry holes.

His paper was followed by a talk by Paul D. Torrey of Bradford, Pa., on the "Geology of Northern Pennsylvania and New York." He stated that this area had received more detailed investigation than any other area in the United States.

He then gave a detailed history and explanation of the geology of these two areas. Jack Gaddes of the Allegany Gas Co. gave a brief discussion outlining points where he believed differences in opinion often arose in geologic work.

Production Records

The paper scheduled to have been given by J. G. Montgomery, newly elected president, was postponed and ordered incorporated in the institute proceedings. His topic was "Production Records and Nomenclature." This was to have been discussed by Virgil Bowyer of Wellsboro, Pa.

K. B. Nowels of the Forest Oil Corp., Bradford, Pa., presented a paper on "Water Flooding in the Bradford Oil Fields," discussing the five and seven-spot methods. This was discussed briefly by R. D. Wyckoff of the Gulf Research Laboratories, Pittsburgh, Pa.

The convention program today included inspection trips to the Wayne-Dundee gas field, Watkins Glen State Park, and the Tioga County gas field where seismograph tests of the area were to be demonstrated. Sunday includes a program of entertainment which will open with a dance tonight at the Tyoga Country Club.

Leading gas men in eastern United States, geologists, students from many Pennsylvania and New York State colleges, drilling contractors, supply men all made the Penn Wells Hotel their headquarters.

RELEASES GULF FUNDS

AUSTIN, Tex., May 16.—Decision releasing between $5,000,000 and $6,000,000 to the Gulf Production Co., was handed down by Texas supreme court Monday, in the case of Rio Bravo Oil Co. vs J. F. Weed and others of Beaumont, from Jefferson County.

POTTER'S GAS AREA RESEMBLES TIOGA FIELD, GEOLOGIST SAYS

By Special Correspondent

WELLSBORO, Pa., May 14.—There were no completions in the Tioga or the Wayne gas fields in the past week and a new location in Potter County was the only news of importance in the northern Pennsylvania gas field The Potter Development Co. made the location on the A. Matteson farm in lower Hebron Township, in western Potter County, where Hungiville and others opened a gas producing area early this year on the Booth farm. The Potter Development Co. will carry on the drilling operations in Potter, McKean, Cameron and Elk Counties, Pennsylvania, for the North Penn Gas Co. and the Allegany Gas Co.

A number of wells are already drilling in western Potter County. Even before the Hungiville well was brought in almost all of the desirable acreage on the Hebron structure had been leased by major operators in the northern Pennsylvania gas field. The Allegany Gas Co., Lycoming Natural Gas Co., Sylvania Corp., the Penn York Natural Gas Co. and the North Branch Development Co. each of which had done considerable geological work in the area, all provided themselves with protective acreage, awaiting the results of the test on the Booth farm. Following the completion of the well small operators took up what was left of the acreage in the district and the leasing play extended in all directions even into McKean County.

There is only one gas line into the field, a 6-inch line laid by the Allegheny Gas Co. which is taking about 500,000 feet of gas per day from the Booth well. This is an old line which has been serving the shallow gas wells in the Hebron area for several years. The United Natural Gas Co., a Standard of New Jersey company, has a line into Smethport, the county seat of McKean County, 20 miles west of the Hebron Field.

Only a few wells are drilling in Tioga County this week. Interest was centered on the Lycoming Natural Gas Co.'s No. 1 Ida T. Wheeler in Delmar Township. A test this week demonstrated that the hole is straight. Drilling was resumed at 5,522 feet on top of a sand. All other wells on the Wellsboro structure were shut down this week. On the Sabinsville anticline the North Branch Development Co. was drilling the only active well, No. 1 Murray in Lawrence Township, at 2,200 feet. The Mutual Natural Gas Co. is moving in to start No. 2 Murray in Lawrence Township.

In Potter County the Allegany Gas Co. was drilling at 5,250 feet in No. 1 Champlin, in Allegany Township; G. H. Shrack was drilling below 1,500 feet in No. 1 Tassell in the same township and the Williamsport Natural Gas Co. was below 700 feet in No. 1 Nugent in Hebron Township. R. Hungiville has made location for No. 2 on the Booth farm.

Chester D. Whorton, geologist, of Coudersport, Potter County, in commenting on the possibilities of the new deep sand gas field in Potter County writes as follows:

"The discovery well on the Booth farm is located on the north flank of a well defined surface geological structure, on the Hebron anticline. This structure has at least 200 feet of closure, with its longest axis running approximately north 63 degrees east. According to the surface structure, the Booth producer drilled by Hungiville and others, was drilled in the best possible location, on their block. The other locations, mentioned above, are all fairly well situated on the surface structure, and in the absence of adverse sand conditions, should produce.

"From the information obtained from the log of the Booth well, the geologic section encountered in drilling this well, is much the same as that in the Tioga gas field, Tioga County. The increase in depth of the Booth well (approximately 900 feet), being partly due to its starting higher in the section, (approximately 500 feet), and partly due to thickening in section between the surface and the 1,000-foot (Tully) lime. This thickening seems to be between 400 and 600 feet. The lime reported in the Booth well, as the 1,000-foot (Tully) lime, was only 840 feet above the Onandaga lime, instead of 1,000 feet, as is the case in the Tioga gas field. There is some question, however, whether the lime reported is the 1,000-foot lime, as it was only 4 feet thick, while in the Tioga gas field, it is usually much thicker.

"It can be readily seen that with the present information, any estimation of the size of the ultimate producing area, or of the amount of the ultimate recovery of the Hebron Field, must necessarily be very hazardous. These estimates are based wholly upon the results which have been obtained to date in the Tioga gas field, Tioga County. It is reasonable to assume that in the Hebron Field, the size of the producing area will be in approximately the same proportion to the size of the surface structure, as it was in the Tioga gas field. Local conditions will certainly affect the above statement somewhat, but in the main the two fields should be similar. With this as a basis, I have estimated the producing area in the Hebron Field at approximately 6,000 acres or 10 square miles. The most conservative estimate which I have heard on the ultimate recovery of the Tioga gas field is 10,000,000 cubic feet per acre, and it is my opinion that the Hebron Field will exceed that figure."

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO OF CALIFORNIA
(Effective June 23, 1931)

UNION OIL CO. OF CALIFORNIA
(Effective June 20, 1931)

For current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee.
(All gravities above those quoted take highest price offered in that field)

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills Buena Vista Hills	Lost Hills	Santa Paula	Orcutt	Gravity
14-14.9	$ 65	$.65	$.65	$.65	....	$ 65	....	$.65	$.65	$.65	....	$.55	$.55	$.65	$.55	14-14.9
15-15.9	.65	.65	.65	.65	....	65	....	.65	.65	.65	....	.55	.55	.65	.55	15-15.9
16-16.9	.65	.65	.65	.65	....	.65	....	.65	.65	.65	....	.55	.55	.65	.55	16-16.9
17-17.9	.65	.65	.65	.65	....	.65	....	.65	.65	.65	....	.55	.55	.65	.55	17-17.9
18-18.9	.65	.65	.65	.65	....	.65	....	.65	.65	.65	....	.55	.55	.65	.55	18-18.9
19-19.9	.65	.65	.65	.65	$.65	.65	....	.65	.65	.65	....	.55	.55	.65	.55	19-19.9
20-20.9	.65	.65	.65	.66	.65	.66	....	.65	.65	.65	....	.55	.55	.65	.56	20-20.9
21-21.9	.65	.65	.65	.68	.66	.67	....	.65	.66	.65	....	.55	.57	.65	.57	21-21.9
22-22.9	.65	.65	*.66	.70	.67	.68	....	.66	.68	.65	....	.56	.59	.65	.59	22-22.9
23-23.9	.67	.67	*.68	.72	.68	.70	....	.67	.70	.66	....	.58	.60	.65	.61	23-23.9
24-24.9	.69	.69	*.70	.74	.69	.72	$ 69	.68	.72	.67	$.65	.61	.62	.66	.63	24-24.9
25-25.9	.71	.71	*.72	.76	.70	.74	.71	.70	.74	.69	.65	.64	.64	.68	.65	25-25.9
26-26.9	.73	.73	*.74	....	....	.76	.73	....	....	.71	.65	.66	.66	.70	.67	26-26.9
27-27.9	.75	.75	*.76	....	....	.78	.75	....	....	.73	.68	.68	.67	.72	....	27-27.9
28-28.9	.77	....	....	....	....	.80	.77	....	....	.75	.71	.71	.69	.74	....	28-28.9
29-29.9	.79	....	....	....	....	....	.79	....	....	.77	.73	.74	.71	.76	....	29-29.9
30-30.9	.81	....	....	....	....	....	.81	....	....	.79	.75	.76	.72	.78	....	30-30.9
31-31.9	...	....	....	....	....	....	.83	....	....	....	.78	....	....	....	....	31-31.9
32-32.9	...	....	....	....	....	....	.85	....	....	....	.80	....	....	....	....	32-32.9
33-33.9	...	....	....	....	....	....	.87	....	....	....	.83	....	....	....	....	33-33.9
34-34.9	...	....	....	....	....	....	.89	....	....	....	.85	....	....	....	....	34-34.9
35-35.9	...	....	....	....	....	....	....	....	....	....	.87	....	....	....	....	35-35.9
36-36.9	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	36-36.9

Santa Paula and Orcutt—Posted only by the Union Oil Co.

Playa Del Rey—Subject to a field gathering charge of 5 cents per barrel.

Huntington Beach—Union Oil Co.'s price schedule reads: 14 degrees up to 22.9 degrees, inclusive, 65 cents per barrel; 23-23.9 degrees, 67 cents, with 2 cents added for each degree upward to 27-27.9 degrees, at 75 cents.

Wheeler Ridge—Standard Oil Co. posts 55 cents for all grades.

Coalinga—Standard Oil Co. and Union Oil Co. post 55 cents for all grades up to and including 24-24.9 gravity, and 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—Standard Oil Co. posts 55 cents per barrel for all grades.

McKittrick, Kern River, Midway-Sunset, Elk Hills and Buena Vista Hills—Union Oil Co. pays 50 cents for 11 to 13.9 degrees, and 55 cents for all other grades.

Montebello—Standard Oil Co. and Union Oil Co. post 65 cents per barrel for all grades.

Whittier and La Habra—Standard Oil Co. posts 65 cents per barrel for all grades.

Elwood Terrace—Standard Oil Co. posts: 33-33.9 degrees, 79 cents; 34-34.9 degrees, 81 cents; 35-35.9 degrees, 84 cents; 36-36.9 degrees, 87 cents. All prices f.o.b. ship.

Santa Fe Springs—Union Oil Co.'s top price is 35 cents per barrel for 34-34.9 gravity.

ASSOCIATED OIL CO PRICES

Associated Oil Co. prices effective June 20 are as follows:

Ventura Avenue—22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills—The Associated Oil Co., effective at 7 a.m., February 5, 1932, withdrew and canceled any and all prices heretofore published and in effect for Kettleman Hills oil.

Potrero—24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity which is 69 cents.

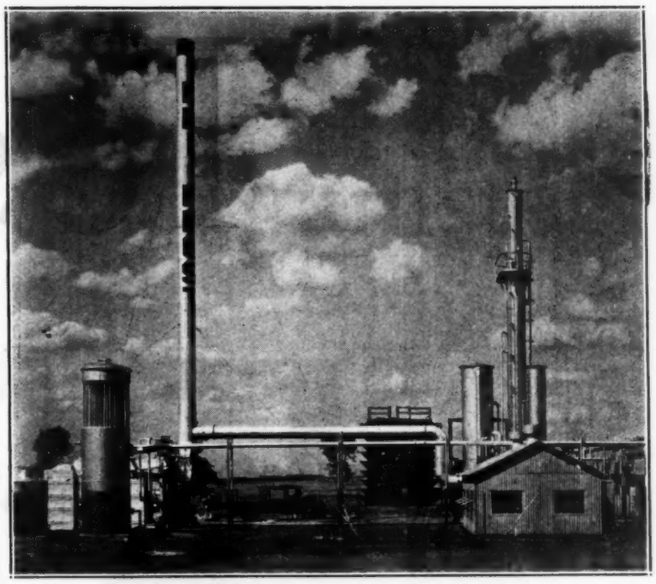
General Petroleum Co. in Kettleman Hills, effective January 1, 1932: 33-33.9°, 66 cents; 34-34.9°, 68 cents; 35-35.9°, 70 cents; 36-36.9°, 72 cents; 37-37.9°, 74 cents; 38-38.9°, 76 cents; 39-39.9°, 78 cents.

Many Problems in the Manufacture and Sale of Solid Carbon Dioxide

* * * * * *

By H. Ross Campbell
Carbonic Products Co., Inc.*

Carbon dioxide, or CO_2, in its solid form, is probably commanding more attention today than any other new industry. While solid CO_2 was first discovered in 1834 and has been used to obtain low temperatures in laboratories for years, it was not until 1924 that it was undertaken to produce it for commercial purposes, and not until 1925 that it was first put on the market. This industry has enjoyed a very healthy growth in its short life, and from an output in 1926 of 1,100,000 pounds, it had raised to 105,000,000 pounds, in 1931—with double that amount estimated for 1932.



General view of the Tulsa plant of the Carbonic Products Co., Inc. where solid and liquid CO_2 is made from the stack gases recovered from the burning of natural gas.

* * * * * * * * * * * *

Several attempts have been made to purify gas from natural gas wells containing a high percentage of CO_2 vapor and a low percentage of hydrocarbons. The Dry Ice Corp. has spent considerable time and money on the Waldon, Colo., well of the Continental Oil Co., but this project has been abandoned.

Difficult to Purify

Most people now generally concede that, to date, no economical method has been developed to separate CO_2 and hydrocarbons. There is, however, one well located in the Estancia Valley, east of Albuquerque, N. M., which produces CO_2, which is not contaminated with hydrocarbons. The analysis of this well shows 98 per cent plus CO_2 with a small percentage of helium and nitrogen. This well is, at this time, closed in. In the Carbonic Products plant in Tulsa, using the Girdler process, which plant I shall describe briefly, the source of supply is taken from the flue gases from a gas-fired boiler. The highest efficiency in combustion is essential to get a high CO_2 per centage. The question most often asked is how much CO_2 can be produced from 1,000 feet of natural gas burned. This varies with the gas in question and is difficult to answer, but to give a specific case, taken from the report, for one day's operation, while using a 1,029 B.t.u. gas with a high per cent of CH_4, 203,000 cubic feet was burned and 1,916,000 cubic feet of flue gas containing 11 2/10 per cent of CO_2 passed to the stack, or 210,000 cubic feet of CO_2 was produced from 203,000 cubic feet of natural gas burned. The flue gas, which contains an average 11.2 per cent of CO_2 and the remainder nitrogen, is drawn from the stack by a rotary blower through a water wash tower and discharged through a second water wash tower and cooler to an absorber, where the CO_2 vapors are combined with a 50-50 solution of Triethanolamine and water, where as high as 86 per cent of CO_2 has been recovered. The nitrogen is permitted to pass to the air at the top of the absorber. The Triethanolamine containing the CO_2 vapor is then pumped to the reactivator, where it is heated with exhaust steam and the CO_2 vapor is driven off to a gas holder. From the gas holder it passes through the driers to the steam driven compressor, where it is compressed to approximately 1,000 pounds pressure, and liquidified in water cooled condensers. It is then further cooled in a set of secondary coolers by expanding liquid CO_2. The cold liquid CO_2 is then expanded into a snow press, where about 50 per cent of the liquid is solidified, the remainder returning to vapor, is returned to the compressors to be recondensed and returned to the snow machine. The 50 per cent, which solidified in the snow machine, is now in the form of snow. The snow machine, which is a combination expansion tank and hydraulic press, is put in operation to press this snow into a 10-inch cube, which weighs approximately 54 pounds, and the product is then ready for shipment.

There is a very wide difference in evaporation figures which have been published, which I believe is due largely to the storage boxes and the volume stored. Solid CO_2 stored properly in well insulated boxes of 1 foot of cork insulation will show about 1 per cent of evaporation for each 24 hours.

Relation in Operation

You have all, no doubt, noticed the similarity of the process of manufacture of this product to the natural gasoline industry, a combination of the absorption and compression methods, and I wish to call to your attention a market condition that is equally similar. In the early days of the natural gasoline, or casinghead industry, as it was then called, supply exceeded the demand many times, and not until Mr. Ford created a demand for motor fuel did your industry thrive to any extent. I mentioned this because I know many persons are considering investment to this new industry and I wish to recommend that all such persons investigate marketing conditions and the present supply, and not overproduce in a young and thriving industry at this time. Solid CO_2 is selling in St. Louis, Chicago and New York below cost, which you gentlemen know only too well is not a healthy condition for any industry. The capacity of the solid CO_2 industry is approximately 600 tons per day, while the estimated consumption for this year is only 50 per cent of that amount. For this reason, I believe more importance should be placed on the development of the market than on manufacturing processes. There is a very large potential market that can be and is being developed. The railroads so far have not used solid CO_2 to any great extent, mainly because of the large investment in wet ice plants, which they have not seen fit to abandon, as well as the expense that would be incurred to equip their cars for solid CO_2 service. The shipment of perishables by truck, however, has grown by leaps and bounds, and in the past few months several truck manufacturers have announced a standard model solid CO_2 equipped truck. To quote the experience of one ice cream company, using solid CO_2, with 40 to 75 pounds of solid CO_2, according to atmospheric temperatures, 300 gallons of ice cream may be handled on a 2-ton truck and be kept in better, cleaner condition without the drip and slop that attended the use of water ice and salt, while 1,300 pounds of water ice and a 3½-ton truck would be required to handle the same volume.

The ice cream industry, so far, has been using the greater volume of solid CO_2 manufactured. Recently, however, the meat, fruit and fish industries have advanced in their use of this refrigerant and are now taking a constantly increasing tonnage.

Frozen Food Industry

The frozen fruit and vegetable industries, although yet in their infancy, are using large amounts of solid CO_2 for shipping and safe keeping of frozen fruits and vegetables. Packers of these commodities have found it advantageous to ship their products in cars refrigerated with CO_2. Fruit and vegetables may be displayed in specially built cabinets to an advantage. Probably the most important accomplishment so far is the development of a thermostatically controlled unit by a reputable company in the East. I mention reputable company because many claims have been made to this accomplishment in the past, but not until the development of this unit, has a satisfactorily controlled box been produced. This unit consists of two sets of coils, one a condensing coil, and the other an evaporating coil and a thermostatically controlled valve. The coils contain methyl chloride and the solid CO_2 is placed in direct contact with the condensing coil, which is inside a well insulated box to prevent heat absorption from an outside source. The condensing coil is on a higher level than the evaporator coil and when the methyl chloride is condensed it flows to the lower level of the evaporator coil. Between the two coils is installed the thermostatic valve, which closes when the compartment reaches the desired temperature and thus shuts off the flow of vapor back to the condensing coil. This device, while still in its experimental stages, has been used successfully in the shipment of carloads of bananas and other fresh fruits and will, no doubt, be developed for domestic use. When this has been accomplished a very large new demand will have been created for solid CO_2.

There is a great difference of opinion as to the efficiency of solid CO_2 as compared with water ice. This varies so much with conditions under which it is used that it cannot be easily answered, but one of the largest manufacturers of CO_2, claims 1 to 20 pounds, where proper equipment is used. Another item to be considered in its use is the life of the truck or car used. While two years is considered the life of a water ice body, due to the drip of the brine through the body and over the chassis, the life of a solid CO_2 body is much longer and the upkeep much less. The railroads estimate a great saving in cutting down corrosion of their rails, which now results from the drip of brine on them.

The liquefier is also a large potential user of solid CO_2. This is a device which directly competes with liquid CO_2 for use in soda fountains and bottling plants, and results in a great saving to users of carbonic gas. The liquefier is constructed so that it is possible to place solid CO_2 in a high pressure condenser, and upon being confined, solid CO_2 will return to its liquid state. When this has been done you then have a cylinder of carbonic gas, which gives identical results with the cylinder now used in soda fountains and bottling plants. Some advantage is gained as to purity because impurities that are common in carbonic gas will not solidify and are therefore not present in the ice. Some sales resistance has been met in the sale of this device on account of the claim of some uninformed persons that the ice is poisonous and that it will not carbonate, etc., but none of these claims are true and a large increase in solid CO_2 sales is expected from this source.

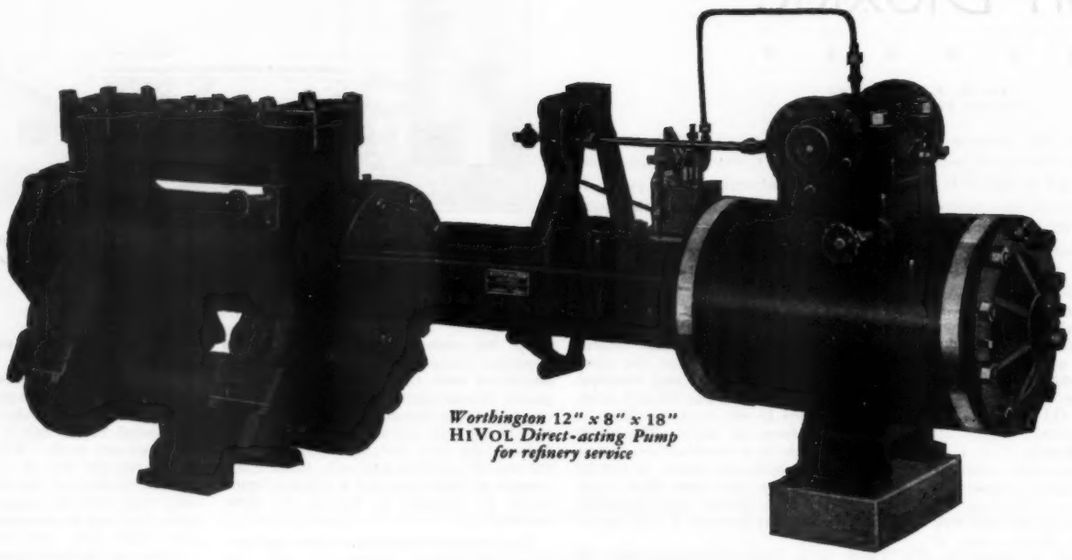
Other Use for Product

Another use for CO_2 which indirectly affects the solid industry through the liquefier is the blasting of coal, as used by the Safety Mining Co., of Benton, Ill.

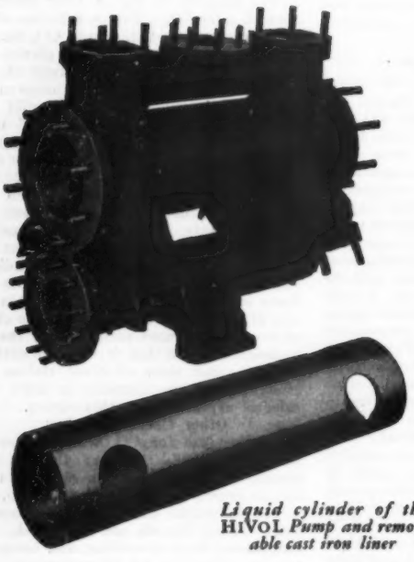
The industrial and laboratory uses of solid carbon dioxide are unlimited. Its cleanliness, lack of residue, and compactness recommend it for laboratory use, and some of the industrial uses to which solid CO_2 have been put are the freezing of golf ball cores; the testing of steel rails; the testing of electric cables; the freezing of quicksand; the manufacture of Neon tubes; the manufacture of radio tubes; the shipping and cooling of serum; the shipping and cooling of candy; the low temperature testing of oils; the safe-keeping of wool, fur and grain in storage; the fumigation and destruction of germs and insects in grain shipping; and to arrest the age hardening of rivets in airplane construction. A great many other ways are known in which solid carbon dioxide may be used to the advantage of manufacturers, retailers and consumers.

*Annual meeting Natural Gasoline Association in Tulsa, May 17-19.

Test your "close



Worthington 12" x 8" x 18" HIVOL *Direct-acting Pump for refinery service*



Liquid cylinder of the HIVOL *Pump and removable cast iron liner*

Here's how you can test the clearance of your "close clearance" steam pumps:

First figure the entire volume of the pulsation chamber. This includes:

Volume of the bore equals area in sq. in. multiplied by length between heads in inches.

Volume of any recesses or counterbores at ends of cylinder.

Volume of chambers above suction valve seats.

Volume of ports between suction valve chambers and cylinder bore.

Volume of chambers under discharge valves, including openings in valve seats.

Volume of ports connecting cylinder bore to discharge valves.

Total of above gives gross volume of pulsation chamber.

From this gross volume deduct:

Actual volume of piston.

Volume of that part of piston rod which is within the pulsation chamber when piston is at outboard end of its nominal stroke.

Volume of suction valves, guards, stems and springs.

This gives the net volume of pulsation chamber.

Figure displacement per stroke equals (area of piston minus ½ area of rod) multiplied by length of nominal stroke.

$$\frac{\text{100 (Net Volume minus Displacement)}}{\text{Displacement multiplied by 2}}$$

equals Percent of Clearance (Average of the two ends)

It is sometimes difficult to figure the volume of the various chambers and ports. The clearance can readily be checked by filling the cylinder with liquid. Make sure that the suction valves do not leak and allow liquid to run out. Remove discharge valve hole covers and discharge valves from each end of cylinder. Pour a measured amount of liquid into the cylinder, filling both ends to the level of the faces on discharge valve seats. This gives the net volume of pulsation chamber.

Figure displacement per stroke equals (area of piston minus ½ area of rod) multiplied by length of nominal stroke.

$$\frac{\text{100 (Net Volume minus Displacement)}}{\text{Displacement multiplied by 2}}$$

equals Percent of Clearance (Average of the two ends)

WORTHI

clearance" pumps against

the HIVOL TRADE MARK

A DISTINCT ADVANCE IN REFINERY PUMPING EQUIPMENT

High Volumetric efficiencies on Highly Volatile liquids

IN the oil industry, a legend has grown up in recent years around the subject of "close clearance" pumps for highly volatile liquids. Claims have been made for clearances as low as 15%.

Recognizing the need for a genuine close clearance type of pump, Worthington engineers have developed the HIVOL . . . a unit embodying Worthington's extensive experience in the design and construction of gas compressors.

Clearances of 13% to 17%, readily proved by mathematical calculation and by simple liquid test, have been attained.

This pump is such a distinct advance in refinery equipment that we believe every engineer interested in pumping problems will want the details.

Bulletin D-111-S4, just printed, contains illustrations and a complete description of the HIVOL Pump. Write for a copy or use the coupon below. Meanwhile we suggest that you test your present pumps according to the simple but accurate method explained on the opposite page . . . to prove to yourself that the clearances are not in the neighborhood of 15%.

FEATURES

1. Improved design differs from any other on the market.
2. Incorporates gas compressor type of design to insure minimum clearance.
3. Straight line flow insures minimum turbulence.
4. The location of the valves results in a liquid end of least possible clearance, mathematically figured and checked by actual volumetric tests.
5. Simple design . . . all parts readily accessible.
6. Built-in priming valves.
7. End suction and top discharge eliminate complicated piping.
8. Rigid cast yoke prevents misalignment.
9. Deep stuffing boxes.
10. Split rods . . . removable liners . . . light valves.
11. Adjustable valve gear and cushion control on steam end.

WORTHINGTON PUMP AND MACHINERY CORPORATION
Works: Harrison, N. J. Cincinnati, Ohio Buffalo, N.Y. Holyoke, Mass.
Executive Offices: 2 Park Avenue, New York, N.Y
GENERAL OFFICES: HARRISON, N. J.
District Sales Offices and Representatives:

ATLANTA	CHICAGO	DALLAS	EL PASO	LOS ANGELES	PHILADELPHIA	ST. PAUL	SEATTLE
BOSTON	CINCINNATI	DENVER	HOUSTON	NEW ORLEANS	PITTSBURGH	SALT LAKE CITY	TULSA
BUFFALO	CLEVELAND	DETROIT	KANSAS CITY	NEW YORK	ST. LOUIS	SAN FRANCISCO	WASHINGTON

Branch Offices or Representatives in Principal Cities of all Foreign Countries

P-178

COMPRESSORS
Portable and Stationary
ROCK DRILLING EQUIPMENT
Rock Drills
Contractors Air Tools
Drill Steel and Accessories
Automatic Heat Treating Machines
Forging Furnaces
MULTI-V-DRIVES
PUMPS
Centrifugal...Steam...Power Rotary...Deep Well
FEEDWATER HEATERS
CONDENSERS and Auxiliaries
METERS
Water...Grease Oil...Gasoline
DIESEL ENGINES
GAS ENGINES
CHROMIUM PLATING
Literature on request

WORTHINGTON PUMP AND MACHINERY CORPORATION, HARRISON, N. J.

You may send me Bulletin D-111-S4 containing information on the HIVOL close clearance pump for handling highly volatile liquids.

Name..... *Position*.....

Organization.....

Address..... B

NGTON

Properties of Liquefied Petroleum Gases and Their Use With Stenches

Various Fields of Utilization and Demands They Place Upon Products

By T. W. Legatski
Phillips Petroleum Co.*

The subject of specifications for liquefied petroleum gases can best be approached by first considering the various fields of utilization and the demands which each of these place upon the products. Obviously, any specifications which are placed upon products must of necessity serve to exclude those products which experience has dictated will prove to be unsatisfactory. Specifications should also of necessity be lenient enough to allow all satisfactory products to be readily marketed.

The commercial liquefied petroleum gases as manufactured in the natural gasoline industry can for all practical purposes be considered as being composed of propane, isobutane and normal butane, although small percentages of ethane and pentanes are invariably present in some of these products. The mode of manufacture does, however, preclude the occurrence of either of these two last mentioned hydrocarbons in appreciable amounts. Liquefied petroleum gases being a by-product of natural gasoline are necessarily somewhat variable as to composition. Obviously, the overhead product from a rectifying column producing Grade 28-70 as a kettle product will be somewhat different in composition when compared with overhead products produced in the course of manufacturing substantially butane-free natural gasoline. Since this overhead product constitutes the raw material for the commercial products, propane and butane, some variation in the nature of at least one of these products is to be expected. The variations, although rather great, are not as serious as one might be led to expect, since the more important physical properties of all of the major components of these products are very similar. A study has been made of the compositions of these various mixtures with the conclusion that the differences in the resulting properties are of no material consequence.

Basis of Specifications

In approaching our problem of establishing proper limits for the commercial liquefied petroleum gas products, a number of factors and influences encountered in the utilization of the products which might serve to place limitations on the properties were studied. It was recognized that such influences and factors when properly coupled with the various manufacturing and transportation problems would constitute a logical starting point in the consideration of rational specifications.

Commercial Propane

Thus in the case of propane, the following factors were deemed worthy of consideration:

1. The range in composition which can be tolerated in connection with the proper combustion of the product in a propane appliance.
2. The results obtained in the simple distillation of blends of propane and butane or, in other words, the vaporization characteristics.
3. The fact that specifications should, if possible, include the competitive propane-propylene products which will undoubtedly continue to be manufactured from refinery vapors.
4. The transportation vapor pressure limit of 105-A-300 tank cars and the relationship it bears to the highest ethane content product which can be handled in such cars.
5. The average properties of commercial propane now being marketed.
6. The fact that the specifications should, if possible, be based on simple tests if such tests will serve to properly define the product. It has been observed in connection with this last factor that the close interrelationship of the properties of light fractions makes it possible to limit the composition, heating values, and all of the other important characteristics by placing limits on the vapor pressure and the endpoint of the product.

Some of these factors it will be noted tend to establish limits for the product while others afford simple means of defining the limits. For the purpose of added clarity, each of these factors will be briefly analyzed.

Composition and vaporization characteristics.—Rather definite proof has been obtained in a number of investigations which indicates that a maximum of 5 per cent by liquid volume of butane can be present in bottled gas with no bad effects. This is true both from the standpoint of combustion of the product in conventional propane appliances and also from the standpoint of freedom from vaporization difficulties at low temperatures. Similarly, products containing several per cent of ethane can also be tolerated. It is, therefore, apparent that a standard of purity of 95 per cent propane would take care of all problems concerning either combustion or vaporization.

Vapor Pressure

All of the remaining factors considered can best be approached from the angle of permissible vapor pressures. Thus, it may be noted that in the case of the 105-A-300 tank car, the allowable upper vapor pressure limit is 225 pounds gauge pressure at 105° F. This means that a propane product containing 5 per cent ethane can readily be accommodated or, in other words, the product representing the extreme of what can be utilized satisfactorily in a propane appliance can readily be transported in a 105-A-300 tank car. A further study along this line indicates that any product within the vapor pressure limits of the 105-A-300 car can readily be transported in the conventional propane cylinders. These observations automatically eliminate the necessity of any further consideration of shipping containers.

In order to provide for the competitive propane-propylene refinery fractions which we have felt is necessary, the properties of such products will also have to be considered. The vapor pressure of pure propylene is such that this product cannot be transported in the 105-A-300 car. This fact, however, will not rule out the shipping of refinery products because the average refinery gas shows a propane-propylene ratio high enough to bring the resultant vapor pressure of the commercial product within the 105-A-300 limit.

In summary, after all these factors were considered, it was concluded that the adoption of the upper transportation limit of the 105-A-300 tank car for the upper vapor pressure limit of commercial propane would be a logical step toward specifications.

Sulphur Content

Although the sulphur content of the commercial propane made in the natural gasoline industry is normally low enough to be of little consequence, a specification was considered necessary to cover this point in order to eliminate possible corrosion difficulties. In as much as some manufacturers are employing noncorrosive sulphur compounds to impart an odor to the propane vapors, any limit placed on sulphur would obviously be made high enough so that it will in no wise restrict the use of such compounds.

Dissolved Water

Through experience, the industry has learned that propane when completely saturated with water causes regulator difficulties in cold weather. The information available to the specifications committee indicated that such troubles could be entirely eliminated if the product were completely or at least partially dehydrated. In as much as a satisfactory test for the determination of the saturation of propane with water was available, a clause was inserted along with the other specifications to provide for the partial dehydration of the product.

Commercial Butane

The methods employed in the utilization of butane are such as to permit a much greater latitude in the specifications than in the case of propane. The drawing up of satisfactory limits for "butane" is, however, considerably more complex because of the fact that the average product is in all cases a three component mixture and a four component mixture is not impossible by any means. The variations in the properties of such products with changing composition have been studied and such variations have been found negligible as previously stated.

For practical purposes, the factors encountered in the utilization and manufacture of butane which would tend to place limitations on the product are as follows:

1. The effect of the method of utilization on limiting the inclusion of hydrocarbon materials heavier than butane.
2. The transportation vapor pressure limit of the 104-A-100 tank car and its relationship to the highest propane content product which can be handled in such cars.
3. The characteristics of the "butane fraction" made under extreme conditions.

A brief analysis of these various factors will serve to bring out their effects in imposing limitations on butane.

Composition

A study of the methods of utilization indicates that butane when used for either gas enrichment or for direct gas manufacture presents the same problems. In considering the first factor, namely the dewpoint, it can safely be said that no troubles would be experienced on the diluted gas if even greater percentages of "heavier than butane" material were allowed than is now the case. However, there is an indefinite practical limit to the amount of heavy material which can be included, since dewpoint difficulties on the undiluted vapors must be avoided. Data have been submitted which indicate that the maximum allowable inclusion of "pentanes and heavier" in butane which can be tolerated if dewpoint difficulties on the undiluted vapors are to be avoided at 50° F. and 5.0 pounds gauge pressure is approximately 1.3 per cent by liquid volume. It has been concluded that since the heavy material present in commercial butane may be due to either actual inclusion of pentanes in the rectifying process or to contamination in storage by material still less volatile than pentanes, both of these possibilities should be considered in placing the limit. Under the circumstances, the limit has been placed at 2 per cent by volume and is expressed in terms of the maximum allowable 95 per cent evaporated temperature for the sake of simplicity.

Vapor Pressure

The vapor pressure limit for butane was arrived at in much the same manner as in the case of propane. The upper vapor pressure limit of the 104-A-100 car was found to be the most logical figure.

Sulphur Content

In as much as butane will find its major outlet through the manufactured gas industry, a definite limitation must be placed on the allowable sulphur. Sulphur, when present, will be due either to its occurrence in the raw material from which it was made or to the intentional addition of sulphur compounds for the purpose of imparting odors. As in the case of propane, the average value for manufactured gas was used as a basis and it was then found that a limit of 20 grains per 1,000 feet of the diluted vapors would take care of all conditions satisfactorily.

Specifications for Propane and Butane

Based on the analysis just completed, specifications have been prepared for both of these products and the necessary test procedures have also been carefully standardized. As finally approved the specifications and testing methods are as follows:

Tentative Specifications for Commercial Propane

Definition

Commercial propane shall be construed to mean a hydrocarbon product composed predominantly of propane and/or propylene.

Composition

The composition of commercial propane shall be at least 95 per cent propane and/or propylene by liquid volume as determined by the combined results of the vapor pressure and mercury freezing tests.

Mercury Freezing Test

The residue as determined by means of the mercury freezing test shall not be more than 2 per cent by volume.

Vapor Pressure

The vapor pressure at 105° F. as determined by the liquefied petroleum gas vapor pressure method shall not be in excess of 225 pounds per square inch gauge pressure.

Sulphur Content

Corrosive forms of sulphur such as dissolved hydrogen sulphide and mercaptan compounds of a highly reactive nature shall be entirely absent. The concentration of relatively inactive organic sulphur present in the flash vaporized product shall not be in excess of 15 grains per 100 cubic feet of vapor.

Water Content

The water content shall be such that the product will satisfactorily pass the standard cobalt bromide test.

Tentative Specifications for Commercial Butanes

Definition

Commercial butanes shall be construed to mean a hydrocarbon product composed predominantly of butane and/or butylenes.

Vapor Pressure

The vapor pressure at 105° F., as determined by the liquefied petroleum gas vapor pressure method, shall not be in excess of 75 pounds per square inch gauge pressure.

Final Boiling Point

Not less than 95 per cent of the material shall evaporate below a temperature of 34° F., as determined in the open cylinder weathering test.

Sulphur Content

Corrosive forms of sulphur, such as

*Before Natural Gasoline Association of America, Tulsa, May 19.

dissolved hydrogen sulphide and mercaptan compounds of a highly reactive nature, shall be entirely absent. The concentration of relatively inactive sulphur present in the flash vaporized product shall not be in excess of 20 grains per 1,000 cubic feet when expressed on the equivalent thermal basis of 550 B.t.u. enriched or manufactured gas.

Water

Shipments shall be entirely free of mechanically entrained water.

Impurities in Propane

The N.G.A.A. tentative method for determination of the nature and extent of contamination of commercial propane with heavier hydrocarbon materials by means of the mercury freezing test is a tentative standard and as such is subject to revision.

Scope

This method is intended for the determination of the nature and extent of the contamination of commercial propane with higher boiling hydrocarbon materials.

Apparatus

1. Graduate.—The graduate shall be of the cylindrical type, of uniform diameter, with a pressed or molded base and a lipped top. The cylinder shall be graduated to contain 100 milliliters, and the graduated portion shall be not less than 7 inches (17.78 cm.) nor more than 8 inches (20.32 cm.) long. It shall be graduated in single milliliters and each fifth mark shall be distinguished by a longer line. It shall be numbered from the bottom up at intervals of 10 milliliters. The overall height of the graduate shall be not less than 9¼ inches (24.8 cm.) nor more than 10¼ inches (26.0 cm.). The graduations shall not be in error by more than 1 milliliter at any point on the scale.

2. Mercury.—The mercury shall be free from oil and foreign matter. The necessary amount (0.5 cm.) shall be determined by means of a small cylinder graduated in 0.1 milliliter.

Procedure

The graduate shall be thoroughly rinsed and chilled in the product to be tested prior to the actual sampling. The mercury (0.5 ml.) shall be added to the chilled graduate at this point together with one or two grains of charcoal. The graduate shall next be filled up to the 100-milliliter mark with the sample to be tested, ample precautions being taken to avoid losses by evaporation.

The contents of the graduate shall then be allowed to weather away slowly down to a point where approximately 50 per cent of the original volume remains. This weathering shall be conducted with no outside application of heat in any form. The condition of the mercury shall be ascertained when 50 per cent of the original volume remains by grasping the top of the graduate and shaking. (A pronounced metallic "ring" will result if the mercury is in a solidified condition.)

The latter part of the weathering operation shall be carried on with continual shaking, the graduate being held in the manner previously described. The continued metallic "ring" shall be taken to indicate the condition of the mercury. No attempts shall be made to accelerate the weathering operation either by removing the accumulated frost on the outside of the graduate or by the external application of heat in any form.

The point at which the mercury commences to melt (indicated by a dull thud as compared with the metallic "ring") shall be noted and the actual volume of hydrocarbon liquid remaining at this point shall be recorded as the residue.

Interpretation of Results

The observations may be converted to terms of "butane contamination" by means of the following table:

Hydrocarbon residue at melting point	Butane contamination
0.0 ml.	0.0 % by volume
1.0	0.7
2.0	1.3
3.0	1.7
4.0	2.2
5.0	2.6
6.0	2.9

Impurities in Butane

The N.G.A.A. tentative method for determination of the nature and extent of contamination of commercial butanes with heavier hydrocarbon materials by means of the open cylinder weathering test is a tentative standard and as such is subject to revision.

Scope

This method is intended for the determination of the nature and extent of the contamination of commercial butane with higher boiling hydrocarbon materials.

Apparatus

1. Graduate.—The graduate shall be of the cylindrical type, of uniform diameter, with a pressed or molded base and a lipped top. The cylinder shall be graduated to contain 100 milliliters, and the graduated portion shall be not less than 7 inches (17.78 cm.) nor more than 8 inches (20.32 cm.) long. It shall be graduated in single milliliters and each fifth mark shall be distinguished by a longer line. It shall be numbered from the bottom up at intervals of 10 milliliters. The overall height of the graduate shall be not less than 9¾ inches (24.8 cm.) nor more than 10¼ inches (26.0 cm.). The graduations shall not be in error by more than 1 milliliter at any point on the scale.

2. Water bath.—The water bath shall be a shallow pan capable of accommodating several graduates. It shall be filled with clean water to a depth of 1½ inches. The bath shall be maintained at a temperature of 60° to 70° F.

3. Thermometer. — The thermometer used shall conform to the following requirements. These specifications cover a mercury in glass thermometer graduated in Fahrenheit degrees as specified and scaled for 3-inch immersion.

Type: Etched stem, glass.

Liquid: Mercury.

Range and subdivision: —40 to 120° F. in 1° F. intervals.

Total length: 300 to 310 mm. (11.8 to 12.2 inches).

Stem: Plain front, enamel back, suitable thermometer tubing, diameter 6.0 to 7.0 mm. (0.24 to 0.28 inch).

Bulb: Corning normal or equally suitable thermometric glass; length, 15.0 to 20.0 mm. (0.59 to 0.79 inch); diameter, 5.0 to 6.0 mm. (0.20 to 0.24 inch).

Distance to —40° F. line from bottom of bulb: 95.0 to 105.0 mm. (3.74 to 4.13 inches).

Distance to 120° F. line from top of thermometer: 45.0 to 60.0 mm. (1.77 to 2.36 inches).

Filling above mercury: Nitrogen gas.

Graduation: All lines and figures clear cut and distinct. The first and each succeeding 10° F. line to be longer than the remaining lines. Graduation to be numbered at each multiple of 10° F.

Immersion: 3 inches.

Scale error: The error at any point of the scale when the thermometer is properly standardized shall not exceed 1° F.

Procedure

The graduate shall be thoroughly rinsed and chilled in the product to be tested prior to the actual sampling. One or two grains of charcoal shall be added at this point. The thermometer shall likewise be chilled with the product. The graduate with the thermometer inserted shall next be filled up to the 100-milliliter mark with the sample to be tested, ample precautions being taken to avoid losses by evaporation.

The filled graduate shall then be placed in the water bath held at 60° to 70° F. and the contents allowed to weather. The thermometer shall not be removed from the graduate during the test and all readings taken shall be with the thermometer bulb just off the bottom of the graduate. The temperature at which ebullition becomes regular shall be recorded as the initial boiling point. The weathering shall be continued in this manner until 10 milliliters of residue remains, at which point the temperature shall be recorded. Further weathering shall be conducted with the graduate held in an inclined position in the bath, volume readings being taken periodically by returning the graduate to its normal vertical position. The thermometer bulb shall be held while determining the temperature so as to be as completely immersed as possible without touching the sides or the bottom of the graduate. The temperature noted when the residue is 5.0 milliliters shall be recorded and a similar record shall be made of the final temperature obtained, recording it as the final boiling point.

Interpretation of Results

The observations may be converted to terms of pentane contamination by means of the following table:

Temperature at 5 ml. residue	Pentane content
30° F.	0.3% by volume
31	0.8
32	1.1
33	1.6
34	2.1
35	2.6

Vapor Pressure Method

The N.G.A.A. tentative method for determination of vapor pressures of liquefied petroleum gas products is a tentative standard and as such is subject to revision.

Scope

This method is intended for the determination of the vapor pressure of liquefied petroleum gas products.

Apparatus

1. Bomb.—The bomb shall be a steel cylinder 3 inches in diameter and 10 inches long, finished both inside and outside, same to be equipped with two liquid eduction pipes one-eighth inch in diameter fitted into one end of the bomb and terminating within one-eighth inch of the other end substantially as illustrated. The exposed ends of the eduction pipes shall be fitted with one-eighth inch brass needle valves of dependable construction. A ¼"x2" heavy steel collar shall be made up flush with the inside face of the same head as a gauge connection. The finished assembly shall be chromium plated overall. It shall finally be equipped with an accurate pressure gauge of the proper range. All threaded connections shall be made up permanently with a mixture of litharge and glycerin. The completed bomb shall be absolutely leakproof.

2. Connections, accessories, etc. — A 2 or 3-foot length of either one-fourth inch outside diameter copper tubing or flexible metal hose will be required for the sampling operation. For the purpose of removing the requisite amount of liquid for the outage necessary, a 100-milliliter graduate will likewise be required.

3. Wath bath.—The water bath shall be of such dimensions that the bomb may be immersed up to the bottom of the pressure gauge. It shall be provided with means for proper agitation and with means of heating to temperature as high as 130° F.

4. Thermometer. — The thermometer used for determining the temperature of the water bath shall be a mercury in glass total immersion thermometer of the range from 0° to 220° F. The error at any point in the thermometer scale shall not exceed 1° F.

Procedure

1. Purging.—The bomb shall be attached to the source of supply by means of one-fourth inch flexible or other equally suitable tubing and partially filled with liquid. Without disconnecting, the inlet valve to the bomb shall then be closed and the air or vapors from previous determinations purged from the bomb by holding same in an inverted position with the discharge valve open to the air. After most of the contents have boiled away, the position of the bomb shall be reversed, whereupon the residual liquid will blow out through the eduction pipe.

2. Sampling. — The bomb, now containing vapors only, shall then be completely filled by closing the discharge valve and opening the inlet valve. As soon as the bomb gauge registers the pressure of the source of supply, the valve shall be closed and the apparatus disconnected. Sufficient outage shall immediately be provided while the bomb is still cool by withdrawing in a graduated cylinder an amount equivalent to 20 per cent of the total volume (approximately 140 cc.), the same to be done while the bomb is in an upright position. In the case of extremely volatile materials, this outage may be checked by weighing to assure that the proper amount of liquid has been retained.

3. Determination.—The bomb shall be submerged into the gauge in a water bath held at 70° F. The pressure registered when the gauge reading becomes constant shall be recorded as the vapor pressure of the product at 70° F. in terms of pounds per square inch gauge. In a like manner, the pressure developed at 100° and 105° F. shall be determined and recorded.

If the accuracy of the gauge is doubted, it may be readily checked by attaching a test gauge to one of the valve outlets and comparing the reading taken simultaneously. The practice of removing the bomb gauge for checking is to be discouraged, since it eventually invites leaks and consequent inaccuracies.

4. Interpretation of results.—The results obtained may be converted to terms of ethane inclusion in commercial propane by adding 1 per cent ethane for each 6 pounds that the observed vapor pressure exceeds that of pure propane (108 pounds) at a temperature of 70° F. Thus, if the observed vapor pressure of a sample of commercial propane is found to be 120 pounds at 70° F., the ethane content of the product will be $\frac{120 - 108}{16}$ or 2 per cent.

Water Content

The N.G.A.A. tentative method for the qualitative determination of the water content of commercial propane by means of the cobalt bromide test is a tentative standard and as such is subject to revision.

Scope

This test is intended to give a qualitative indication of the water content of commercial propane. This test depends on the observation that vapor in equilibrium with a liquefied hydrocarbon gas is saturated with water in direct proportion to the amount the liquid is saturated with water. A determination of the amount of water in the vapor indicates directly the saturation of the liquid with water. The use of cobalt bromide as an indicator depends upon its property of changing color with changing humidity.

Apparatus

1. The indicator.—The indicator is essentially a device for intimately contacting a gas or vapor with finely divided cobalt bromide under conditions such that the color of the cobalt bromide may be observed at all times.

The indicator shall consist of a lightly forked plug of cotton impregnated with cobalt bromide. This plug of cotton shall be held in a glass tube which in turn shall be partially surrounded by a metal shield. The glass tube shall be sealed at its inlet end to a one-eighth inch pipe fitting and at the other end to a fine capillary orifice which serves as the outlet.

(a) Dimensions:

The diameter of the opening in the inlet connection shall not be less than one-eighth inch.

The internal diameter of the glass tubing shall be not less than one-eighth inch nor more than three-sixteenths inch.

The length of the glass tubing shall not be less than 1 inch.

The outlet orifice shall be of such size that it will maintain the pressure of the gas throughout the indicating cotton to within 98 per cent of the pressure at the inlet of the indicator.

The length of the cobalt bromide impregnated plug of cotton shall be not less than three-eighths inch and shall be visible over its entire length.

2. Pressure gauge.—An accurate pressure gauge of suitable range and scaled in single pounds shall be provided.

3. Needle valve.—The needle valve required shall be capable of accurately controlling the flow of gas through the equipment with a minimum of adjustment.

4. Ice bath.—The ice bath shall consist of a glass jar filled with water and cracked ice to a depth sufficient to immerse the cooling coil and all but the tip of the attached indicator.

5. Cooling coil.—The cooling coil shall

consist of at least 2 feet of one-fourth inch outside diameter copper tubing coiled so that it may be conveniently immersed in the ice bath. The inlet of the coil shall extend well above the bath and shall be fitted with a suitable connection to accommodate the pressure gauge and needle valve. The outlet of the coil shall point upward and shall be attached to the inlet of the indicator. The indicator shall be located in a position such that it can be readily immersed up to within one-half inch of the tip.

Assembly of Apparatus

The needle valve shall be attached to the source of material to be tested (connected to the vapor outlet) by means of suitable pipe or tubing connection. The outlet of the needle valve shall be connected to a pipe tee. One outlet of the pipe tee shall be connected to the pressure gauge and the other outlet to the inlet of the cooling coil. The outlet of the cooling coil shall be connected to the indicator and the assembled coil and indicator shall then be adjusted to a vertical position. The ice bath shall then be placed in position so that the coil and all but approximately one-half inch of the tip of the indicator will be immersed.

Test Procedure

The master valve on the source of material to be tested shall just be opened. The needle valve shall then be carefully opened until the pressure gauge registers exactly 50 pounds per square inch and shall then be carefully adjusted so that this pressure is maintained for the duration of the test. The indicator shall be observed until it is evident that no further change in color will take place. Ordinarily the final color is assumed in a very few minutes but in the event that the change is gradual, 30 minutes shall be allowed for the indicator to assume its final color. The color finally assumed will be pink, lavender or blue. If the final color is noted as blue the material shall be reported as being "dry" while, if the final color is noted as pink or lavender, the material shall be reported as being "wet."

Precautions

All tubing and fitting must be absolutely dry and free of oil and foreign matter, so that the indicator will not be ruined or the results of the test obscured. There is always the possibility that the tubing and fittings will contain a small amount of water, particularly on damp or rainy days. To make certain that it is not wet tubing that causes the trouble when the indicator turns pink, the following method of checking is suggested.

When it is certain that the indicator will turn or has turned pink on a test, the needle valves should be partially closed so that a pressure of 5 pounds or less will remain on the system. If no water is present in the tubing or fittings, the color of the indicator will turn to blue. However, if water is present, the color of the indicator will remain pink at least until the water present is evaporated by the gas. When water is found in the tubing, the tubing should be dried so that the indicator will assume a blue color at the reduced pressure. The test should then be repeated in the regular manner and the final color used to report wet or dry as previously specified.

Specific Gravity

The N.G.A.A. tentative method for the determination of the specific gravity of volatile hydrocarbon liquids is a tentative standard and as such is subject to revision.

Scope

This method is designed for the purpose of determining the gravities of liquefied gases and other highly volatile products.

Apparatus

A. Specifications.

1. The Bomb.—The bomb consists of of a steel cylinder approximately 3 inches in diameter and 12 inches long, finished both inside and outside, is equipped with two liquid eduction pipes one-eighth inch in diameter, which pipes are fitted into one end of the bomb as shown and terminate within one-eighth inch of the other end of the bomb. The exposed ends of the eduction pipes are fitted with one-eighth inch brass needle valves of dependable construction. A ¼"x¾" heavy steel collar made up flush with the inside face of the same head completes the bomb. As a protection from rust, the entire outer surface of the apparatus is covered with a thin coat of nickel plate. The bomb is finally equipped with an accurate pressure gauge registering up to 500 pounds per square inch. All threaded connections are made up permanently with a mixture of litharge and glycerin. The finished bomb should be absolutely leakproof.

2. Connections, accessories, etc.—A 2 or 3-foot length of one-fourth inch diameter metallic hose will be required for the sampling operation. If not available, one-fourth inch outside diameter copper tubing will be found to answer almost equally well.

3. Water bath.—The water bath shall be of such dimensions that the bomb may be immersed up to the valves. It should be provided with an agitator and with both heating and cooling coils to facilitate maintaining a temperature of exactly 60° F.

4. Thermometers.—The thermometer used for determining the temperature of the water bath shall be a mercury-in-glass total immersion thermometer of the range from 0° to 220° F. It should be checked for accuracy before being put in service.

5. Balances and weights.—The balances used for the determination should be of fairly rugged design, preferably a torsion balance with a capacity of from 10 to 15 pounds, and should be accurate to .001 of a pound. The weights used should be of equal accuracy and should be checked periodically for wear.

B. Calibration.

1. Tare weight.—To determine the tare weight, the bomb is thoroughly cleansed by repeated rinsing with liquefied gas. The bomb is then submersed in a hot water bath and is pumped down to as complete a vacuum as possible. This operation may have to be repeated several times in order to vaporize the last trace of moisture present in the apparatus. The bomb is then dried and is weighed full of air to the nearest .001 of a pound. This value should be checked for accuracy in cases where a new piece of apparatus is being put into service.

2. Water weight capacity at 60° F.—The bomb is connected to the vacuum pump in the manner shown by the attached plate, which makes it possible to completely fill it with distilled water. The procedure is to pump down to as complete a vacuum as possible and then crack the inlet valve to allow the water to be drawn in until the bomb is completely full. The inlet valve is then closed and further pumping is done to remove the small amount of air which remains. The valve between the vacuum pump and the bomb is then closed and the valve on the water line is opened to allow the last bit of water to flow into the bomb. After closing the water line valve, the apparatus is disconnected and the bomb is placed in an upright position. A funnel constructed from a 1 to one-eighth inch reducer and short nipples is made up to one of the valve outlets. It is filled with distilled water after which the valve below it is opened and the bomb is submersed in an ice bath. The valve is closed after sufficient time has elapsed for the contents to arrive at the temperature of the bath. This will require at least an hour. The apparatus after being disconnected is held in an accurately controlled 60° F. water bath until it comes to temperature. The excess pressure over 100 pounds which builds up due to expansion is relieved by cracking one of the valves. When equilibrium is reached, which will usually be complete in an hour, the apparatus is removed from the bath, is dried and weighed to the nearest .001 of a pound. The tare weight previously determined is subtracted from the total weight obtained above which gives the resultant water weight capacity at 60° F. This value should be stamped on the apparatus.

C. Checking for accuracy, etc.

The bomb, although constructed in such a manner as to insure almost constant volume and tare weight, will nevertheless suffer in long service. For this reason, the volume or water weight capacity and also the tare weight should be checked at least once every two months and more often if the service warrants it.

The balances used should be inspected before every determination and should be checked for accuracy once a month, or more often if occasion warrants it.

What has been said for balances also applies to weights. These should be checked against standard weights as often as necessary and in any event at least once every month.

Test Procedure

1. Purging.—The bomb is attached by means of one-fourth inch diameter flexible tubing or one-fourth inch outside diameter copper tubing to the source of supply and is partially filled with liquid. Without disconnecting, the inlet valve to the bomb is then closed and the air or vapors from previous determinations are purged from the bomb by holding same in an inverted position with the discharge valve open. After most of the contents have boiled away, the position of the bomb is reversed and the residual liquid is allowed to blow out through the eduction pipe.

2. Sampling.—The bomb, which now contains vapors only, is then completely filled by closing the discharge valve and opening the inlet valve. As soon as the bomb gauge registers the pressure of the source of supply, the valves are closed and the apparatus is disconnected. The apparatus is now completely full of liquid at some temperature below 60° F. The determination should be started immediately, since a slight rise in the temperature of the bomb and its contents may increase the pressure sufficiently to disrupt the apparatus.

3. Determinations.—The bomb is submersed in a water bath at 60° F. and a pressure approximately equal to double the vapor pressure of the product at this temperature is maintained on the bomb at all times, the excess liquid being removed by cracking a valve when occasion requires it. When equilibrium is reached as is evidenced by no further rise in pressure on prolonged standing, the bomb is removed, is chilled momentarily by submersing in an ice bath and is then thoroughly dried. The weight is then determined to the nearest .001 of a pound.

To determine the gravity of the liquid, the tare weight is subtracted from the above determined weight and the resultant figure is divided by the water weight capacity determined in the calibration. Duplicate determinations should yield results that check to 0.0008 or better.

Liquefied Petroleum Gas Stenches

Speaking generally, the gas industry as a whole has always been aware of the value of the odor of such gases as coal gas and carbureted water gas for giving warning of their presence to consumers and employes. Developments within the industry, however, are tending toward the increased use of less odorous types of gases, such as natural gas, air carbureted with propane or butane, and blends of odorous types of manufactured gases with these various products. This has brought up a problem which apparently concerns all companies engaged in the exploitation of either natural gas or these various by-products of natural gasoline, namely, the problem of providing a suitable odorant having sufficient merit to minimize the economic losses and attendant hazards occasioned by leakage.

The problem in so far as natural gas is concerned has proven to be a relatively simple one and the practice of odorizing natural gas is becoming quite general. The U. S. Bureau of Mines and the American Gas Association have both contributed largely to the solution of this problem and as a result a number of satisfactory, although not ideal, warning agents are now available and are being quite widely used.

The problem of providing a satisfactory stench for bottled gas, although appearing offhand to be a ridiculously simple one, really becomes quite involved when we stop to consider the requirements for a satisfactory bottled gas stench. The general requirements for bottled gas stenches regardless of how they are used are as follows:

1. A stench should be cheap. This means that the stench should be cheap per unit odor rather than per pound. One stench may be relatively expensive per pound but actually cheaper in use than another stench which, while cheap per pound, must be used in such large quantities that its final cost is high.

2. A stench should have a strong odor. In no case is it desirable to use large quantities of a stench, no matter how cheap it may be. The higher the concentration of a stench, the more likely it will give trouble merely because of its high concentration.

3. A stench must be practically noncorrosive toward steel, copper and brass.

4. A stench must be relatively nontoxic. While there is not much danger of poisoning from the vapors which have been stenched with a poisonous stench, there is danger that poisoning may occur while handling the material in its concentrated form. This must be avoided.

5. A stench must be stable. That is, a stench must not decompose or polymerize to valueless compounds under ordinary conditions of use.

6. A stench must form no objectionable compounds upon burning. The combustion products of stenches must not be poisonous, corrosive or of strong odor in the concentration that they are formed.

Methods of Stenching

There are three general methods of stenching which can be followed in the case of bottled gas. In addition to the general requirements for all stenches, there are a number of specific requirements for each method of stenching.

In the case of stenches that are to be used in solution, it is obvious that they will have to be soluble in propane in the proportions in which they are used. They must also possess vaporization characteristics such that they will leave the container in practically constant proportion throughout the life of the charge. This latter requirement is almost impossible of fulfillment.

If immiscible stenches are to be used, they will, of course, have to be insoluble in propane. In addition, they must have a vapor pressure such that they will vaporize in the correct proportions.

If the third system is followed which involves the use of stench pots, the stenches considered must have very low vapor pressures. Under conditions of use such stenches should not freeze up if normally liquid nor should they melt if normally solid.

Apart from these three requirements, there is still another which might be classified under the caption "nature of odor." The popular conception of an ideal odor would be one that would immediately be associated with the presence of gas by uninformed persons. This conception of proper odor may be more or less idealistic and of imaginary value only but its importance is borne out quite well by observations made on field tests, some of which resulted in rather amusing customer reactions.

This more or less brief outline of the basic requirements for stenches intended for bottled gas use will give some idea as to the difficulties encountered in attempting to locate suitable materials. A large number of possible stench materials have been investigated during the past three years in the various laboratories of member companies and a number of reasonably satisfactory stenches have been located. In the case of butane, a number of companies are now using such materials as Calodorant, pyridine, ethyl mercaptan and ethyl sulphide with good success. For propane, ethyl sulphide is becoming more or less widely used. It is expected that other suitable materials will be located as time goes on. However, actual full-scale use of these various materials over extended periods of time and under the conditions that prevail in the distribution and utilization of bottled gases will be necessary before final judgment can be reached as to their relative practical values and the commercial feasibility of making such additions in each particular case.

A few of the Tube-Turns used in a western, 95,000 barrel crude oil pumping station. 775 lbs. discharge pressure. Tube-Turns were used to insure low pressure loss and long life.

WHENEVER you're in the market for fittings, we believe it will pay you to remember that *there are no "bugs" in Tube-Turns.*

Even before welding was generally recognized or practiced in the United States, Tube-Turns were widely and successfully used in Europe. And for the past five years in this country, thousands upon thousands of Tube-Turns have been in the severest service that leading oil, process and industrial companies could give them—*with never a single failure.*

In all these years, no Tube-Turn customer has ever suggested even one change that would be desirable in these peerless fittings. From the first, their *uniform walls**, their ideal radius, their entire design has met with complete satisfaction.

Tube-Turns are made by the one known process that takes fine, seamless tubing and converts it into fittings that match the pipe in every respect. In fact, Tube-Turns are a little *better* than the original tubing because the extra forging process and annealing add strength and reduce stress. May we send you complete facts? *Address:* Tube-Turns, *Incorporated,* 1311 S. Shelby St., Louisville, Ky.

TUBE-TURNS

UNIFORM* WALL-THICKNESS

is *essential* in obtaining

(1) Satisfactory Joints. Regardless of the workmanship or materials used, no welder can consistently make good joints unless the fitting lines up with the pipe—*in O. D., I. D., and wall thickness.* . . . Thickened walls also increase time and cost of welding.

(2) Full-Life Piping. Corrosion and erosion are always most severe at *the back* (outside) *wall* of a fitting. Thinning at this point *reduces life.*

*Tube-Turns have *uniform wall-thickness*—ALWAYS within A. S. T. M. tolerances *at all points.* No thinning of outside walls. No thickening of inside walls.

Developments Placing Natural Gasoline Industry On Sound Economic Basis

Public Acceptance of Products a Guarantee of Future Prosperity

By R. C. Alden
Phillips Petroleum Co.*

IN THE accompanying paper the writer discusses all the important angles relating to the economics of the natural gasoline industry including utilization and marketing methods as well as manufacturing and transportation.

Fundamentally, he points out, there are three economic flaws in the natural gasoline industry. These are: (1) Utter dependence on one market; (2) this single market places a double freight charge on the product in reaching the ultimate consumer; (3) lack of storage facilities to provide for the seasonal demand for the product. To these might be added a fourth, namely, a complete failure in accounting in regard to the actual economic cost of manufacture and value of natural gasoline.

Various phases of these subjects are discussed under the several headings of this paper. Definite suggestions are made as to how the natural gasoline industry can widen the market for its products and eliminate the conditions which have been responsible for dissatisfaction between manufacturers and users of natural gasoline.

The writer concludes: "With a product, superior in its market, economically cheaper than its competition, it seems that only the most colossal lack of foresight and planning would permit that product to become a drug on the market."

There are those who believe the natural gasoline industry will be forced out of existence by changes in refining methods. To support this view its advocates point to the increasing volatility and antiknock characteristics of refinery gasoline. There are up-to-date refineries which can make a finished product without the help of natural gasoline. When all the refineries have progressed to this point, who will then buy natural gasoline?

Let us examine these premises. Finished products are relative. The motor fuel of 1920 was a good motor fuel in its day but no marketing company would risk its reputation by dispensing such a gasoline today. Even the third grade gasolines of today are superior to the motor fuel of 1920. Thus when the cracking processes find their balance, refiners will learn that natural gasoline can still add volatility and perhaps antiknock characteristics to motor fuel.

Even now there are signs of the necessary progress in this direction. During the past year several of the major marketing companies have announced new gasolines. The chief characteristics are improved volatility and antiknock ratings. Sometimes the chief emphasis is altogether on volatility. Whether these particular companies use natural gasolines or cracking processes to obtain the added volatility, other refiners will need natural gasoline if they meet the competition in quality.

And thus are being written the chapters which will perpetuate the markets for natural gasoline. No doubt we will witness many more. Natural gasoline is available to improve the characteristics of motor fuel. It will be used for this purpose. Each successive forward step in the refining art will merely raise the general quality level of motor fuel.

As will be developed under a subsequent heading there are two very important points to remember in connection with this steady improvement in the quality of refinery gasoline. These are: (1) The tendency to improve the volatility and antiknock characteristics of refinery gasoline is bound to reduce the value of natural gasoline relative to the value of refinery gasoline; (2) the cost of the refinery gasoline will increase. Thus as this tendency continues, the natural gasoline manufacturer will have to be content with relatively lower prices, relying on the increased cost of manufacture of the refinery product to maintain his operations at a profitable level.

The preceding paragraphs have indicated some hope for a continuance of markets for natural gasoline. Granting the validity of such a premise there should be little need to develop the thought that natural gasoline production is inevitable. Given the prospects of profits, the enterprise of American capital will see to it that there are so many producing units that profits go by the board, but the product will be made. Can you visualize what would happen if all the companies who now customarily build gasoline plants would become more befogged by their accounting system than they now are and decide to get out of natural gasoline production as soon as possible? There are men in this room who would become millionaires by getting into natural gasoline production as quickly as possible.

However, there are more important considerations pointing to the inevitableness of the continued production of natural gasoline. I have reference to the element of conservation of resources, particularly as related to the rapidly developing concepts of crude oil and natural gas production. We hope the wasteful days are over. We are all more interested than we were in producing our natural resources intelligently and sanely. Certainly the public will scrutinize our conduct more vigilantly in the future. It can be expected that ultimately the flow of natural gas will be strictly regulated to the necessities for production of crude oil and that the natural gas will have to be processed for its gasoline content. The handwriting is on the wall. Government bureaus boast about the conservation of resources effected by the natural gasoline industry. Who can believe there will be a backward step?

Under conditions of a constant oil to gas ratio in crude oil production it is interesting to note that as refinery yields of gasoline increase the percentage of natural gasoline in finished motor fuel will decrease. Thus the following tabulation shows the percentage of natural gasoline in finished motor fuel for various refinery yields, assuming an oil-gas ratio of 1,000 cubic feet per barrel of crude oil and a natural gasoline content of 2 gallons per 1,000 cubic feet.

Yield of refinery gasoline	Pct. natural in finished motor fuel
40	10.6
50	8.7
60	7.4
70	5.4
80	5.6

Perhaps when the production and refining arts have attained their ultimate perfection, butane will be a more desirable component of motor fuel and instead of 2 gallons per 1,000 feet, the natural gasoline industry will produce 3 gallons per 1,000 feet.

Additionally we have besides gas line gasoline plants such expedients as repressuring and recirculating gas in which the production of natural gasoline is incidental and thus accomplished at an insignificant cost. Wherever these production methods are employed, natural gasoline will be extracted.

From the foregoing considerations it would appear that natural gasoline will be an article of commerce for many years to come. It must be produced and once produced it will always be used to improve the quality of finished motor fuel.

Cost of Manufacture

The cost of manufacture of gasoline at refineries is the one factor which will govern the price of natural gasoline. It is, therefore, worth studying this influence.

In a recent pamphlet[1] of the U. S. Tariff Commission, the following summary from Tables 128 and 129 shows the costs of refining processes for the years 1929 and 1930 by refining districts:

REFINERY PROCESSING COSTS IN CENTS PER BARREL OF CHARGING STOCK

District—	1929	1930
Domestic refineries running 70% or more foreign crude	26.27	32.56
Atlantic Coast, more than 70% domestic crude	74.65	73.44
Atlantic Coast, mixed crudes	70.00	77.52
Gulf Coast	52.43	57.86
California	30.49	34.32
Mid-Continent	49.14	54.26
Ohio Valley	68.57	71.30
Appalachian	107 93	120.28
Rocky Mountain	67.53	85.18

It is interesting to note that 1930 refinery processing costs were higher than 1929 except for one district where a slight decline was effected.

The costs in the above table are exclusive of raw material costs and transportation costs on incoming raw material. Additionally the tabulated costs are borne by kerosene, gas oil, fuel oil, lubricating oil and special products. The same authority, in Tables 116 to 125, enumerates the costs of gasoline at the refinery as shown in Table 1.

Because natural gasoline at gasoline plants is usually at a transportation disadvantage to the ultimate consumer, natural gasoline must be manufactured at a cost of from 1 to 2 cents per gallon less than the refinery product to be in an economic competitive position. Also, because natural gasoline imparts premium qualities to refinery gasolines in the way of volatility, high lead responsiveness and superior octane numbers it would appear that the value of natural gasoline should be more nearly related to the cost of manufacture of premium gasolines than to nonpremium gasolines.

From these considerations it follows that under normal economic conditions if natural gasoline can be manufactured at a total net cost of 5 to 6 cents per gallon there will be a considerable margin of profit in competing with the refinery product for the ultimate market.

In comparing the cost of refinery gasoline with the cost of natural gasoline the following points of difference are at once apparent:

Investment.—Usually substantially lower at refineries, although a considerable part of gasoline plant investment is attributable to services rendered to other branches rather than necessities of the gasoline plant.

Depreciation Rate.—The uncertainty of the gasoline plant as an integral part of the producing fields requires a considerably higher depreciation rate.

Obsolescence.—Decidedly in favor of the natural gasoline plant.

Processing Costs.—Declining in natural gasoline plants; rising in refineries. Materially lower at gasoline plants of average size or greater. As with investment, some of operating costs at gasoline plants are economically attributable to other branches of the industry.

Raw Material Costs.—Approximately equal, although at gasoline plants the cost is definitely related to sales price.

Transportation Costs.—The natural gasoline plant has no transportation cost on raw material. On the other hand the refinery is usually closer to the ultimate consumer.

So many factors influence the cost of manufacture of natural gasoline it is impossible to estimate an average figure. At one extreme we have the large well-pressure plants, gas pipe-line plants and repressuring plants. At the other extreme are the small plants not yet depreciated. However, there is every indication in past price relationships that it has been possible for the natural gasoline manufacturer to produce 26-70 (Grade AA) natural at a substantial premium under the sales price for U. S. Motor. Thus, for the six years, 1926 to 1931, the average Group 3 price for U. S. Motor was 7.32 cents per gallon, while for Grade AA the price was 6.32 cents per gallon, or 86.4 per cent of the U. S. Motor price.

One factor which greatly influences the cost of manufacture of natural gasoline is the percentage of butane which can be incorporated in the finished product of the industry. As the demand for butane in natural gasoline is curtailed, the gasoline plant yield declines materially. These yield losses have been established elsewhere together with the price ratios necessary to equal gasoline plant income. As long as these price ratios are maintained the natural gasoline industry has little to fear in terms of comparative manufacturing costs.

This whole situation can be brought to a focus by considering butane-free natural gasoline as the basic commodity produced by the natural gasoline industry. If butane-free natural gasoline is worth a premium over U. S. Motor gasoline to the ultimate consumer, the future of the natural gasoline industry is safe. In general, the cost of manufacture of butane-free natural gasoline is 40 per cent higher than for Grade 26-70 natural. There have been enough demonstrations of the marketability of butane-free natural gasoline as a direct motor fuel to convince the most ardent pessimist that the product has definite commercial possibilities as a premium product.

Interdepartmental Accounting

The functions of natural gasoline departments are closely related to crude oil

*Annual meeting Natural Gasoline Association of America, Tulsa, May 17-19.

[1]Report to the House of Representatives on Crude Petroleum and Its Liquid Products. Report No. 30, Second Series, November 30, 1931.

production and natural gas departments. Here the past profit records of the natural gasoline industry have worked to the ultimate disadvantage of the gasoline departments. Because profits were easy, many production and gas department functions have been accepted by the natural gasoline departments. Thus gasoline plants, as a conservation measure, permit the flow of wells which might otherwise be shut in; gas is collected and compressed to gas line pressure; lease pressures are regulated; gas volumes are metered; vacuum is maintained; repressuring is furnished; water and steam are supplied and numerous other services are rendered which would devolve on other departments were there no natural gasoline department to assume the burden. Fundamentally the costs of performing these extra functions should not be attributed to the natural gasoline department.

Then, after having these burdensome costs added to our operating expenses we are confronted with our refinery departments who unanimously state that natural gasoline is not worth a cent but if the "G.M." insists they will use the stuff at 10 per cent less than it cost to make it. Fundamentally, interdepartmental accounting, which treats gallons as gallons regardless, is responsible for this viewpoint. The refinery will seldom admit that natural gasoline actually improves the marketability of the refinery product, but it does and the material is entitled to an interdepartmental credit for the improvement it effects, rather than a discount because the tanks are full.

There are large companies today who are selling not only their own natural gasoline but vapor recovery gasoline in the open market merely because the executives of those companies have the facts presented to them in terms of totally inadequate accounting systems. Rather than burn a little more butane at the refineries their accounting methods have advised them it is more economical to let someone else have at ruinous prices the best gasoline they produce. Thus distress natural gasoline is forced on the market depressing the entire petroleum price structure.

Although the extra services rendered by the natural gasoline industry to crude oil production and natural gas departments are worth considering from an economic viewpoint they are more or less incorporated in the structure of contractual obligations. They cannot, therefore, be easily eliminated. However, on the other side of the picture it would seem that many large companies could profit by a more thorough and honest analysis of the value of natural gasoline.

Value of Butane

In the writer's opinion the most important economic factor in the natural gasoline industry is to maintain the butane content of natural gasoline at a level compatible with the best interests of the refiner or more fundamentally with those of the ultimate consumer. Economically it is far worse to include too much than too little butane. The former condition brings its inevitable penalties in the way of low prices due to oversupply and to adverse comments from the consumer while the latter condition brings just as inevitable a reward in the way of high prices due to a slight undersupply.

In this respect the natural gasoline industry has been decidedly shortsighted. Even now, with the handwriting on the wall, we are reluctant to lower our sights from the 26-pound grades. We will wait until our consumers are again thoroughly convinced that natural gasoline is as bad or worse than casinghead gasoline was. Then with the resultant crushing inferiority complex we will struggle to a sane level of operations. We will wait until the refiners, busy with their numerous problems, arise in wrath and tell us how much harm our avarice has done them. In effect, the recent loss of prestige of natural gasoline amounts to just this mandate. The refiners have too much butane without complicating matters by purchasing it in natural gasoline.

Of course, the ultimate solution of this problem of excess butane is the improvement of automotive fuel systems to permit greater inclusions of butane in motor fuels. This necessarily will be a gradual process. In the transition period the natural gasoline industry will profit most if it adapts itself to the changing conditions.

It will be interesting to study the relative cost and value of butane from the natural gasoline plant and from the refinery to determine whether the price ratios established by natural gasoline plant yields can be justified in refinery purchases of natural gasoline. Obviously butane from refinery vapors is cheaper for the refiner than butane from natural gasoline. Consequently, refiners are making every effort to conserve and use their own resources of this material and in increasing numbers are finding themselves with an excess of butane. The excess can be wasted, used as refinery fuel or to a limited extent marketed in the liquefied petroleum gas markets.

It can be mathematically demonstrated that natural gasoline butane purchased by refiners in excess of requirements and conceding the natural gasoline manufacturer a price schedule based on relative yields, costs the refiner the freight plus a processing charge for eliminating the excess butane. The formula expressing this relationship is as follows:

$$B = D + \frac{C}{E},$$

where

B = cost, in cents per gallon, of excess butane purchased by refiner.

D = cost, in cents per gallon, freight or transportation between gasoline plant and refinery.

C = cost, in cents per gallon, of processing natural gasoline having excess butane at refinery.

E = excess of butane, in gallons, per gallon of natural gasoline receipts at refinery.

The costs, C, above may be actual accounting charges, but usually are composed of such intangibles as greater handling costs due to larger receipts, cost of fractionation, increased load on vapor recovery system, increased loss of valuable components from gasoline storage, and increased cost of conservation of vapor losses. The refinery accounting system may show no charge for these items but there is nevertheless some cost involved in purchasing, receiving and eliminating the excess material.

The magnitude of the processing charge in the preceding formula is shown in Table 2.

Even with such an extremely low processing cost as 0.10 cent per gallon of throughput, the processing cost assignable to excess butane can amount to 1 cent per gallon. With the freight cost added, the purchase of excess natural gasoline butane at refineries becomes an unaccountable luxury, particularly in these days when another dollar saved is a monument to someone's ingenuity. Excess butane at the refinery is seldom, if ever, worth more than the lowly commodity known as fuel oil. If refiners, getting more butane than they require in natural gasoline, have these added costs to pay, the natural gasoline manufacturer will be penalized accordingly. Regardless of whether the requirements for butane content are high or low it is to the benefit of the natural gasoline industry to furnish the refiner with a grade of natural gasoline which needs no further processing at the refinery.

Some of the economic implications of the plant yield ratio price basis are worthy of consideration. In effect, the natural gasoline manufacturer is insisting that butane-free natural gasoline is worth a premium over U. S. Motor, and is giving the butane in the more volatile grades to the purchaser for nothing. On this basis, butane from natural gasoline costs the purchaser nothing but the freight as long as he does not buy more than he needs for his finished gasoline.

The economic justification for placing natural gasoline butane at origin at substantially zero cost to the purchaser is found in the following facts:

1. To efficiently extract all the pentanes and heavier, it is physically nec-

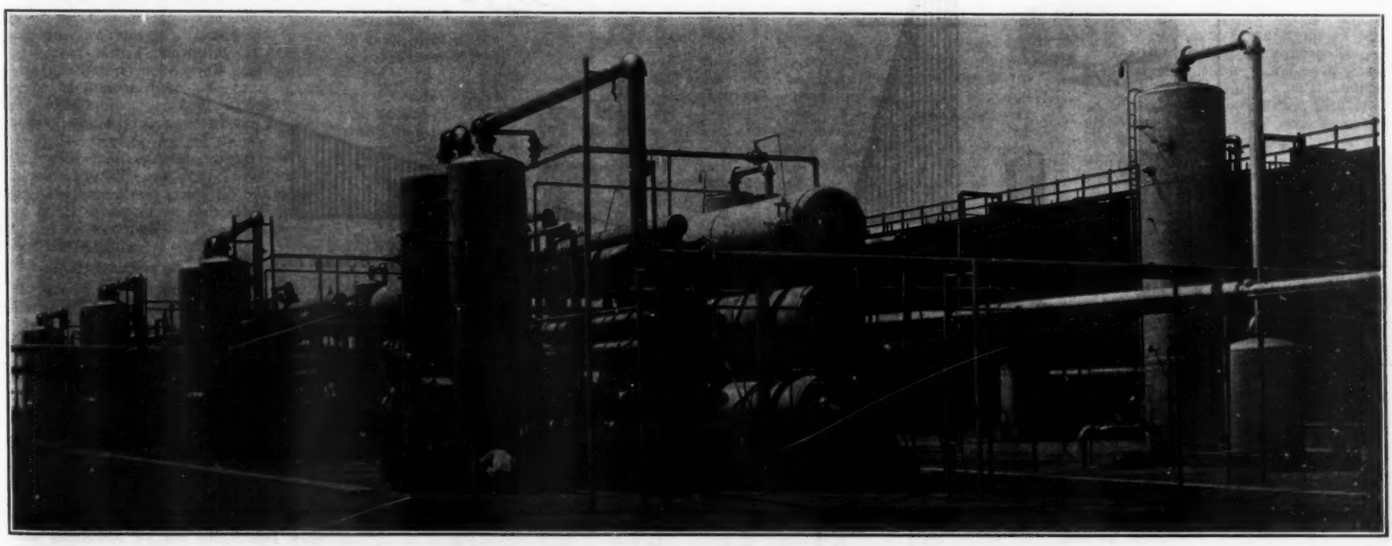
TABLE 1—COSTS OF REFINERY GASOLINE IN CENTS PER GALLON

(Exclusive of blending materials)

Year	Item—	Domestic refineries running more than 70% foreign crude	Atlantic Coast using more than 70% domestic crude	Gulf Coast	California
	Gasoline, Excluding Premium Gasoline				
1929	Charging stock at refinery	4.45	5.57	5.25	3.91
	Conversion	1.71	2.27	1.87	1.40
	Total	6.16	7.84	7.12	5.31
1930	Charging stock at refinery	3.84	5.47	5.22	3.78
	Conversion	1.74	2.19	2.10	1.49
	Total	5.58	7.66	7.32	5.27
	Premium Gasoline				
1929	Charging stock at refinery	7.44	6.48	6.14	6.53
	Conversion	4.27	2.67	1.90	1.55
	Total	11.71	9.15	8.04	8.08
1930	Charging stock at refinery	6.63	6.28	2.85	4.90
	Conversion	3.77	2.62	2.15	2.20
	Total	10.40	8.90	5.00	7.10

TABLE 2—COST, IN CENTS PER GALLON, OF EXCESS NATURAL GASOLINE BUTANE ATTRIBUTABLE TO PROCESSING AT REFINERIES

Excess butane in gallons per 100 gallons of receipts	Processing costs, in cents per gallon, of receipts of natural gasoline				
	0.10	0.25	0.50	0.75	1.00
5	2.00	5.00	10.00	15.00	20.00
10	1.00	2.50	5.00	7.50	10.00
15	0.67	1.67	3.33	5.00	6.67
20	0.50	1.25	2.50	3.75	5.00
25	0.40	1.00	2.00	3.00	4.00
30	0.33	0.83	1.67	2.50	3.33
40	0.25	0.63	1.25	1.88	2.50



General view of the Phillips Petroleum Company's plant at McCamey, Texas.

CHARACTERISTIC FLOW CURVES OF
INNER VALVE CONSTRUCTION
Valve Size 4"
Initial Pressure 50 lbs/Sq. In.
Outlet Pressure - 0 lbs/Sq. In.
Fluid Water
Valve Opening
Capacity
V-Port Type Bevel Seated
Fisher Konoval-Bevel Seated
Standard Bevel Seated Inner Valve
0 5 10 15 20 25 30 35 40
1 2 3 4 5

The REPORT on KONOVALV

FISHER GOVERNOR COMPANY
Inter-Office Correspondence

Date March 16, 1932

Mailed From

Subject Report on Konovalv

To Mr. J. H. Fisher, Pres.

Dear Mr. Fisher:

I am pleased to advise that the complete design and capacity work has been completed on our new inner valve, the Konovalv, which gives us, in actual test, the ideal flow curve.

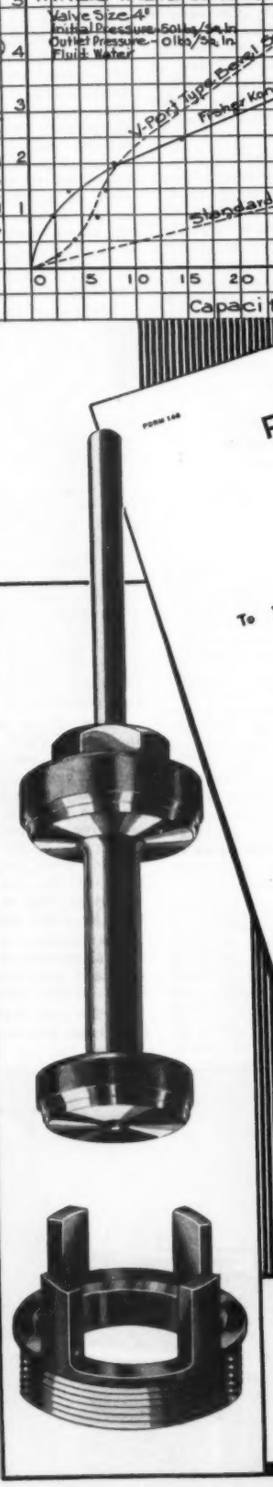
You will recall the engineering department gave us a flow curve and stated that all sizes of Konovalvs must produce that curve in test. This has involved eighteen months of intensive work because each size valve had to be individually designed. A common curvature for the Kono part of the valve in different sizes did not result in the ideal flow curve for all sizes, consequently each size valve has a different curvature.

The factory has a new line of reversible bodies in which to use the Konovalv and we are now in a position to give our customers the most modern throttling flow valve in a superior reversible valve body.

Very truly yours,

FISHER GOVERNOR COMPANY.

Chief of Research Department.



ASK FOR BULLETIN 830

Fisher Governor Company

201 SOUTH FIRST AVENUE
MARSHALLTOWN, IOWA

FISHER TRADE MARK

1015 SANTA FE AVENUE
LOS ANGELES, CALIF.

essary to also extract large quantities of butane.

2. Except for yields, the cost of fractionation is largely independent of the point (butane content) at which the separation is made.

Premium Properties

The economic reasons for insisting that butane-free natural gasoline is worth a premium over U. S. Motor are found in the superior qualities of the product, which could be easily commercialized in the direct markets. These superior qualities are: (1) Higher effective volatility, which improves starting, warming up, and under many conditions, acceleration; (2) octane number 64 to 70; (3) extremely high responsiveness to ethyl; (4) maintenance of antiknock characteristics over a wide range of engine conditions; (5) lower sulphur content; (6) low gum content; (7) high gravity; (8) low endpoint. Butane-free natural gasoline is primarily a winter gasoline but it can be used in large percentages in the summer time. Moreover, its volatility characteristics are such that it can be easily and cheaply stored. It has been successfully stored on a large scale in crude oil tanks.

In the refining of crude oil negligible amounts of butane are available in the straightrun distillation. In the cracking processes a fair estimate for the butane yield seems to be between 1 and 1.5 gallons of butane per barrel of charging stock. All told it is probable that regardless of the intensity of cracking or the gasoline yield, the production of butane at refineries will not exceed 2 gallons per barrel of crude oil run. The following tabulation shows the per cent of butane this maximum butane yield will contribute to motor fuel:

Refinery gasoline yield	Per cent refinery butane in refinery gasoline
50	9.5
60	7.9
70	6.8
80	6.0

At the present time the average motor fuel contains about 5 per cent of butane, half of which comes from natural gasoline. These figures make it clear why so many refiners are deciding they do not need natural gasoline. In reality they have too much butane but can still use butane-free natural gasoline, if for nothing else because of its "nuisance" value.

If the supply of refinery light ends exceeds the demands of the motor fuel market, as has so often been stated, it is not an impractical suggestion that the refiners purchase butane-free natural on the price basis suggested herein for use in large proportions in the premium grades of motor fuel. Obviously, this would increase the cost of the premium gasoline but it would reduce the cost of the regular grade. If such a practice were followed universally and assuming the premium grade amounts to 25 per cent of total sales it would mean that this grade would contain 27.5 per cent butane-free natural gasoline. It would also mean that refinery crude runs would have to be increased by 3.7 per cent, or about 80,000 bbls. per day. The refining industry would also save about 30 per cent of its present freight bill on natural gasoline, an estimated total savings of about $20,000 per day. In addition, where the premium grade is ethylized, there is the prospect of considerable savings due to the high lead responsiveness of natural gasoline.

Utilization of Butane

We are just now in a critical period concerning the utilization of butane and by "we" I mean both refiners and natural gasoline manufacturers. Butane is the cheapest and best motor fuel. Yet because of its vapor pressure it must be included in motor fuel in quantities limited by the design of automotive fuel systems. Progress is being made in this direction. Each increase of 1 pound vapor pressure permissible in motor fuels automatically creates a market for approximately 600,000 gallons per day of butane. But this development will be slow. In the meantime we are confronted with the fact that refineries can produce enough butane to meet the requirements of the motor fuel markets. The natural gasoline industry must prepare itself to lower the butane content of its product during the next few years. In the course of time, as refinery gasoline yields increase, as automotive fuel systems are improved, and as conservation measures are more rigorously applied to natural gasoline production it is to be expected that we can again share more fully in the motor fuel markets for butane under conditions in which butane will have a definite and appreciable value.

Trends in Automobile Industry

The most important feature of automobile design related to the natural gasoline industry is the fuel system of the car. From data at hand it would appear that simple changes here can make it possible to use all the butane that can be produced by both the refining and natural gasoline industries. Thus the vapor lock work reported by Doctor Bridgeman of the Bureau of Standards shows the following relationships for the best cars now on the road:

Atmospheric temperature	Maximum Reid vapor pressure	Estimated butane content
100	11.4	10.6
90	13.4	13.4
80	15.9	17.1
70	18.7	21.5
60	22.0	28.5

Many of the 1932 models have markedly improved fuel systems over the previous models. If this progress continues, in a few years the petroleum industry will be able to raise the butane content of motor fuels appreciably.

It is important during the transition period to keep intimately posted in regard to developments and above all to know when to begin the upward trend in butane content. The development of high compression engines is also a vital matter to the natural gasoline industry. As will be discussed under a separate heading there are definite indications that natural gasoline and the paraffin hydrocarbons have definite superiorities in this respect.

Blending Value

The addition of natural gasoline to refinery gasoline invariably improves both the antiknock and volatility characteristics of the finished blend. If it were possible to assign definite market values to these marketable features the value of natural gasoline could be more definitely established, particularly in the accounting records of integrated companies.

It is a well-known fact that a weak natural gasoline market usually leads to a weak refinery market The writer believes the weakness of the natural gasoline market is due to the failure of the integrated companies to properly credit natural gasoline for its contribution to the quality of motor fuel.

Our sales departments are invariably confronted with the argument that natural gasoline costs more at the refinery than the finished gasoline and therefore is handled at a loss. From a fundamental economic basis this is untrue.

It is, of course, impossible to assign precise values to volatility and antiknock characteristics. Nevertheless there are some definite factors which can be used in arriving at approximation of the general market value of these properties.

In regard to volatility, the question can be stated in the following terms: What is the value of an additional per cent evaporated at 212° F. in the finished gasoline? A good estimate under present market conditions seems to be 0.02 cent per gallon per cent at 212° F. increase. On this basis, a high test gasoline with 55 per cent at 212° F. would have a market value of about 0.4 cent per gallon above U. S. Motor gasoline, a not unreasonable premium. Similarly 68-70 gasoline with about 70 per cent at 212° F. would have a market value of about 0.7 cent per gallon above U. S. Motor gasoline, a rather low premium.

It can be demonstrated mathematically that the value of natural gasoline from a volatility viewpoint is entirely independent of the quantity and quality of natural gasoline used in blending. The only variable affecting its value is the volatility of the refinery stock. As the volatility of the refinery stock increases the value of natural gasoline decreases. The table below shows the premium value at the point of blending of natural gasoline over refinery gasoline for several refinery stocks, with the factor of 0.02 cent per gallon previously described as the basis.

VOLATILITY PREMIUM AT POINT OF BLENDING OF NATURAL GASOLINE OVER REFINERY GASOLINE
(1% additional at 212° F. equals 0.02 cent per gallon)

Refinery gasoline (% at 212° F.)	Premium (cents/gal.)
20	1.4
25	1.3
30	1.2
35	1.1
40	1.0

It is to be emphasized that the volatility premium for natural gasoline shown in the above table is the same regardless of the quantity or quality of natural gasoline used in blending. In explanation of this seemingly paradoxical statement it is to be remembered that variation in quality (R.V.P.) of natural gasoline does not materially alter the effective volatility of the blend and that from a quantity viewpoint, the increase in effective volatility is directly proportional to the amount of natural gasoline used, so that the value of increased volatility is exactly offset by the increased quantities of natural gasoline used.

The market value of 1 octane number is more difficult to estimate, although several calculations lead to a value of about 0.08 cent per gallon. On this basis 61 octane number gasoline is worth 0.64 cent per gallon more than 53 octane number gasoline, a not unprecedented premium. The cost of ethylizing amounts to about 0.10 cent per gallon per octane number. Some calculations based on refinery costs lead to the conclusion that operating costs rise at about this same rate when increasing the octane number of refinery gasoline. Fundamentally, the value of an octane number will be determined by the cost of ethylizing unless refinery processes can lower the cost.

Both the quantity and quality of natural gasoline used in blending influence the value of natural gasoline from an antiknock viewpoint. The following table presents calculated premium values for natural gasoline when blending gasolines to a 10-pound product. The volatility characteristics of the refinery gasolines were assumed constant at 6 pounds and 25 per cent evaporated at 212° F., but the octane number was varied.

To Table 3 should be added the volatility premium from the preceding table, which in the illustration is 1.3 cent per gallon, to arrive at the total premium value of natural gasoline over the refinery gasoline.

There is an additional value of natural gasoline when used in ethyl base gasolines due to the high lead responsiveness of the product. It is impossible to evaluate this premium at the present time.

From a study of the above tables it is evident that the more natural gasoline a refiner uses, the less it is worth to him. On the other hand, the more natural gasoline a refiner uses, the more it costs him because of the necessity for the more expensive grades of natural gasoline of lower vapor pressure. From these conclusions it follows that the refiner should purchase natural gasoline of the highest vapor pressure compatable with his requirements, and to use the entire production available from the natural gasoline department. On such a basis, both the refinery division and the gasoline department make the most profits.

It is also noteworthy that the general tendency to improve the quality of commercial motor fuel by improving the volatility and octane number of the refinery product is bound to reduce the relative value of natural gasoline. As this tendency continues the natural gasoline manufacturer will have to be content with lower relative prices, relying on the increased cost of manufacture of the refinery product to maintain his operations at a profitable level.

To illustrate the facts here set forth let us assume the following conditions: Vapor pressure of finished gasoline to be 10 pounds; refinery gasoline 6 pounds R.V.P., 25 per cent at 212° F., and 57 octane number; natural gasoline used, 20 per cent with 21.5 pounds R.V.P., freight 2 cents per gallon; sales price of finished gasoline 6 cents per gallon.

From the preceding tables the approximate total premium is 1.3 plus 1.6 or 2.9 cents per gallon. Consequently for the 20 per cent blend commanding a price of 6 cents per gallon, the refinery gasoline is worth 5.42 cents per gallon and the natural gasoline is worth 8.32 cents per gallon at the refinery. Deducting the 2-cent freight charge the natural gasoline is worth 6.32 cents per gallon at the gasoline plant.

Antiknock Ratings

The entire subject of antiknock ratings is in a state of flux. As has been predicted elsewhere the newly discovered factors entering the problem all favor natural gasoline. For example, natural gasolines of relatively low vapor pressure require less lead to reach 75 to 80 octane number under the high speed, high temperature test than under the low speed, low temperature test. As a further example of the superior antiknock characteristics of natural gasoline it has been found by actual experiments in high compression multicylinder tests that ethylized aviation natural gasoline is superior to any other known variety of gasolines ethylized to an equal octane number as judged by conventional octane number determinations.

It is too early to present definite data regarding the status of natural gasoline under our latest understanding of antiknock characteristics. Nevertheless, all the indications point to the desirability of using natural gasoline in large percentages in the premium gasolines, thus improving volatility while lowering lead requirements.

Iso-butane and normal butane have octane numbers of 100 and 91 respectively. Butane-free natural gasoline has an octane number of 65 or better. Under the more rigorous test conditions of test these octane numbers may actually increase while the octane number of gasolines from other sources will decline. There is also some indication that lead responsiveness of natural gasoline improves while with other gasolines it decreases.

In this respect the future of natural gasoline seems very promising indeed. It is certainly worth more attention on the part of the larger producers of natural gasoline than has been awarded it. Certainly we can not expect our customers to determine the merits of natural gasoline. It is up to us to develop our own sales talks.

Aviation Naturals

Aviation gasoline is the cream of the crop. The very best products go into this market. If there are any who doubt the merits of natural gasoline let him digest these facts:

1. Producing 10 per cent of the motor fuel supply, the natural gasoline industry furnishes at least 20 per cent of the aviation gasoline. Only the stigma of "casinghead" gasoline prevents a larger volume of sales.

2. Natural gasoline is one of the few known sources of Army Air Corps Fight-

TABLE 3—ANTIKNOCK PREMIUM AT POINT OF BLENDING OF NATURAL GASOLINE OVER REFINERY GASOLINE
(One additional octane number equals 0.08 cent per gallon)

Natural %	Gasoline R.V.P.	Premium in cents/gal. when octane number of refinery gasoline is 49	53	57	61	65	% @ 212 of finished gasoline
20	21.5	2.40	2.00	1.60	1.24	0.92	37
30	16.7	1.95	1.63	1.28	0.93	0.58	44
40	14.4	1.72	1.40	1.06	0.72	0.40	51
50	12.9	1.55	1.25	0.91	0.58	0.20	58
60	11.7	1.47	1.12	0.80	0.48	0.16	64
70	11.0	1.37	1.04	0.72	0.39	0.08	71

ing Grade Aviation Gasoline. (Y-3557E).

With these pleasant facts as a background, let us consider the various factors involved.

In the first place, the market for aviation gasoline eliminates the obnoxious double freight charge. It is a direct market. Thus a material savings is possible which under present conditions is largely donated to the customer because he has to be convinced that "casinghead" gasoline is not a law unto itself. Ultimately a part of this saving can be reflected in profits to the natural gasoline industry. This factor in itself should stimulate the natural gasoline industry to its utmost effort in developing this direct market.

The importance of this item can only be emphasized by stating that 10-pound natural gasoline can be ethylized with 3 c.c. of lead to 92 octane number or better while with 7-pound natural gasoline it is necessary to use 5 c.c. of lead to get 87 octane number. It is needless to repeat the advantages enjoyed by natural gasoline in this field. There is one advantage which cannot be stressed too much and that is the uniformity of the product. Volatility and antiknock characteristics are absolutely dependable given the control specifications. This cannot be stated in regard to refinery aviation gasolines.

In the effort for speed in the aviation industry rapid strides are being made in the use of superchargers and higher compression ratios. The point has been reached where the marketer who sells a product of less than 73 octane number is jeopardizing the good name of his product. Aviation natural gasoline must be ethylized to attain this octane number.

Motor Natural Gasolines

The commercial possibilities of motor natural gasoline in either the premium gasoline or the independent marketing trades are unlimited. The advantages a product has of being even slightly superior in any respect have so often been demonstrated commercially that no question can be raised as to the ability of motor natural gasoline to find a market.

There is one very important commercial aspect of motor natural gasoline which has been lost in the scramble for high octane numbers in premium gasolines. Prior to the advent of octane numbers premium gasolines were generally "high test" gasolines. There was and is a very good reason for "high test" gasolines as premium gasolines. Every automobile responds to improved volatility and thus there is an appeal to every motorist to buy the premium grade. They get something in the way of improved performance for the extra money they pay. As compared with this, high octane number gasolines are of benefit in only a limited number of cars. There are only a relatively few motorists buying high antiknock premium gasoline who get anything for the extra money they pay. The valid appeal of high antiknock gasoline is to a limited clientele. Thus, the emphasis on octane numbers in premium gasolines has served to restrict the market for premium gasoline. Motor natural gasolines, as premium gasolines, have the universal appeal of volatility and in addition the natural gasolines content usually improves the lead susceptibility so that the more restricted antiknock appeal can be incorporated in the product.

"High test" premium gasolines have practically disappeared from the market. As an example, our company has been supplying "60" gasoline to an organization in Ohio in a special case. Checking up on this matter we learned the following things:

1. In this particular locality there was a persistent demand for "high test" gasoline.
2. No local refining company would furnish "high test" gasoline.
3. The motor natural gasoline was extremely popular at a 1-cent premium.

The manufacture of motor natural gasolines is relatively simple. In its essentials it comprises reducing the butane content of refinery gasoline and natural gasoline stocks to a degree which will permit the inclusion of large percentages of butane-free natural gasoline. To effect noticeable differences in summer gasolines it is necessary to practically eliminate butane from both blending stocks. In the winter time as much as 9 per cent butane can be included in the finished motor fuel.

From a specification viewpoint the outstanding characteristic of motor natural gasoline is the high percentage evaporated at the A.S.T.M. 212° F. point, or conversely the low temperature at the A.S.T.M. 50 per cent point. The effect of the butane content on this characteristic is exemplified in the following table where motor natural gasolines are compared with conventional motor fuels:

Butane content of motor fuel	A.S.T.M. % motor natural gasoline	Evap. at 212°F. conventional motor fuels
3.0	41.5	25.6
5.0	49.2	32.7
7.0	56.0	37.1

By restricting the butane content of the natural gasoline used it is possible to use larger proportions and thus greatly improve the effective volatility of the finished blend. From a performance viewpoint the outstanding characteristic of motor natural gasoline is warming up characteristics. In this respect the product is vastly superior to conventional motor fuels. It is really this added convenience which attracts the motorist. Next in order is ease of starting. There are also advantages in regard to accelerating ability but these are not so apparent to the motorist. A decided advantage of motor natural gasolines is the reduction in the use of the choke which in turn greatly minimizes crankcase oil dilution.

Economically there is no reason why premium gasolines should not generally be motor natural gasolines. If the costs of manufacture of the premium grades are as much above those of the regular grade as shown earlier in this discussion it is certain that many refiners are overlooking a real opportunity to increase the market appeal for premium gasolines.

It is in the form of motor natural gasoline that natural gasoline possesses its so-called "nuisance" value to the refiner. Personally the term "nuisance" value is objectionable because of my complete confidence in the intrinsic worth of natural gasoline. It is my opinion that the natural gasoline industry will serve not only its own best ends but also those of the refining industry by cultivating the direct markets for motor natural gasoline.

First Distress Gasoline

An economic factor, which too few people consider, is that natural gasoline under present circumstances is always the first distress gasoline. The limited storage facilities at gasoline plants cause the quoted prices for natural gasoline to be a sure index of whether refiners are building surplus or deficient stocks of gasoline. When refinery tanks are full, natural gasoline purchases are curtailed, natural gasoline prices fall and thus natural gasoline always leads the way into price recessions.

There is an additional element here which will be discussed in more detail under a subsequent heading. Natural gasoline in passing to the ultimate consumer via the refinery has a double freight charge to pay. Natural gasoline direct to the ultimate consumer has a single freight charge to pay. The natural gasoline industry has patiently paid the extra freight for many years. The benefit of the superior qualities of the product have been dissipated in transportation costs. It would certainly appear that some effort should be made to establish a market in which the full benefit of the premium qualities of our product could be reflected.

There is one important consideration which must not be overlooked in cultivating the direct market for motor natural gasoline. The natural gasoline industry has been criticized, and I believe justly, for permitting its product to get into the hands of price cutters and tax evaders.

Transportation

Reference has been made to the fact that natural gasoline reaching the ultimate consumer via the refinery has to pay a double freight charge, namely into and out of the refinery. Those who complain that the refiner does not appreciate the true value of natural gasoline can be comforted by the knowledge that the refiner has always paid more for natural gasoline delivered at the refinery than he has obtained for finished gasoline at the refinery. Even in the disastrous year of 1931 this was true. The following table cites the data demonstrating this point:

	Prices in cents per gallon		
	Natural gasoline		U.S. Motor
Year—	Group 3 average quoted price	Plus 2.0 cents freight cost	Group 3 average quoted price
1926	9.60	11.60	10.38
1927	5.70	7.70	6.86
1928	7.30	9.30	7.96
1929	6.93	8.93	8.05
1930	5.29	7.29	6.55
1931	3.08	5.08	4.10
Six yr. av. .	6.32	8.32	7.32

It is small comfort to the natural gasoline industry to realize that the premium value of natural gasoline is being dissipated in needless transportation costs. With modern gasoline plant equipment it is possible to control the quality of natural gasoline with extreme closeness. Blending has been reduced to very simple terms. Blending equipment is cheap. Why not ship natural gasoline direct to bulk stations for blending at the point of consumption?

Some of the companies with large natural gasoline resources are already initiating a program of this sort. The idea merits serious consideration for it means an added income of between $70,000 and $90,000 per day to the petroleum industry.

Ideal Storage Arrangement

One of the outstanding weaknesses of the natural gasoline industry is its lack of storage facilities.

A very simple cure for this difficulty is to combine storage facilities with a production program.

Such a program would require storage capacity for butane free natural gasoline amounting to from two to three months' production. Table 4 shows how such added storage facilities could be used to better match the quality and quantity of natural gasoline to market requirements under extreme condition of seasonal demand.

By-Products

Every industry should be on the alert for by-products. Diversification of markets is one of the soundest maxims in business. In our industry there are already a number of established by-products, among which are: 1. Residue gas; 2. Liquefied petroleum gases; 3. Amyl acetate from pentanes; 4. Carbon black; 5. Special solvents; 6. Formaldehyde; 7. Chemicals, such as ethylene glycol. A number of possibilities suggest themselves, such as gas cracking to produce benzol, the manufacture of alcohols, etc.

In general, the demand for by-products, unless they are for the fuel markets, is so limited, as compared with the resources available, that only the most monopolistic privileges permit their economic exploitation. Furthermore, each of these products displaces some other commodity or the same commodity from another source. Consequently there must be pronounced economic advantages in the new product, or the new source of the old product, to justify the investment necessary to its production.

In the case of by-products intended for the fuel markets it would seem that co-operative research work, if properly guided, might be beneficial to the industry. In the case of other by-products, only patent protection can afford the monopoly necessary to the development of markets. It would appear then that progress in this direction must depend on the initiative of those companies with sufficient resources to finance the necessary research work.

Conclusion

Some of the ideas which have been advanced here have been discussed in committee meetings and criticised in much detail. Of all the criticisms advanced there are two which merit some discussion because they are at the heart of the whole subject matter.

The first criticism is that it is unwise to tell the consumer, namely the refiner, that butane must be properly valuated whether it comes from the refinery or from the gasoline plant. Once the refiner learns that he really needs less butane in natural gasoline, he will insist on the low-yield product but be willing to pay no more for it. In answer to this criticism I can only yield to the greater marketing experience of the critics. My own opinion is unchanged, nevertheless. Lincoln's famous sentence which begins, "You can fool some of the people some of the time . . ." expresses my viewpoint. The economic law of supply and demand has a disconcerting way of forcing evolution and progress whether the need is recognized or not.

The second criticism is that these are big company ideas. This cannot be denied. However, my company operates gasoline plants of all sizes. We do not hamper the objectives of our large plants with the limitations of the small ones. Our small plants are designed to make one product with the maximum efficiency justifiable. Storage facilities are limited. I can see no reason why the industry cannot consider its problems on the same basis. There is room for the small producer as well as the large one. Surely, if the big companies can stabilize prices, find short cuts in marketing, develop new markets and new uses for the product the final result will be of benefit to the small companies. Undoubtedly it will be impossible for them to share in all the developments but the major market will be strengthened.

One economic maxim is that the marginal producer establishes the prices in industry, particularly in the extractive industries. The marginal producer is the one with highest per unit operating costs and the least margin of profits. With him the necessity is greatest to convert product into cash with the result that purchasers find him the first to cut prices. In distress periods he is the first to be forced out of business. His plant is shut down or combined with a larger unit and subsequently a new group of marginal producers with lower operating costs is establishing the price levels. Thus from an entirely selfish viewpoint it is to the interest of the big units of an industry to conserve and protect the interests of the small units.

The factor which controls the fate of the small units is the price economically justifiable for the product. The higher the price the smaller the unit that can operate at a profit. Thus, if the big units can demonstrate ways and means of adding to the revenue of the industry, if they can justify higher price levels, or even stabilize prices, it will pave the way for still smaller units and thus promote our present small companies from the unhappy role of marginal producers.

TAGLE 4—PRODUCTION, STORAGE AND SALES PROGRAM FOR A GASOLINE PLANT PRODUCING 10,000 GALLONS PER DAY

	Butan free gasoline			High butane gasoline			Butane free gasoline storage
Month—	Produce	Sell	Store	Produce	Sell	Total sales	
Jan.	.....	.....	.....	.....	300,000	300,000	.....
Feb.	.....	.....	.....	300,000	300,000	300,000	.....
Mar.	.....	.....	.....	300,000	300,000	300,000	.....
April	105,000	25,000	80,000	150,000	150,000	175,000	80,000
May	210,000	50,000	160,000	.....	50,000	50,000	240,000
June	210,000	50,000	160,000	.....	50,000	50,000	400,000
July	210,000	50,000	160,000	.....	50,000	50,000	560,000
Aug.	105,000	80,000	—80,000	175,000	175,000	255,000	480,000
Sept.	.....	160,000	—160,000	350,000	350,000	510,000	320,000
Oct.	.....	160,000	—160,000	375,000	375,000	535,000	160,000
Nov.	.....	160,000	—160,000	400,000	400,000	560,000	.....
Dec.	.....	.....	.....	300,000	300,000	300,000	.....

High Hub! for Butt Welding

Drop Forged by Vogt . . your assurance of strength and soundness in high hub butt welding flanges. Accurately faced and drilled to A. E. S. C. standards with machine beveled hubs for easy welding. We carry a large stock of sizes, ranging from 2" to 12" in Series 15 and 30, for immediate shipment.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KENTUCKY
NEW YORK CHICAGO CLEVELAND PHILADELPHIA DALLAS

Manufacturers of Drop Forged Steel Valves, Fittings, Oil Refinery Equipment, Water Tube Boilers, Ice Making and Refrigerating Machinery, Heat Exchangers

dependable

Vogt

Forged Steel FLANGES

POWELL PRODUCTS

The CHOICE *of* ENGINEERS *who want* LASTING INSTALLATIONS

FOR installations demanding long, dependable service, Powell Valves have won the confidence of engineers everywhere.

They are designed and built for controlling water, air, steam, oil and gas. The metals that go into them are tested for purity and strength. All parts are sufficiently heavy, especially at the points where strain and wear are greatest. All wearing parts are renewable.

Fig. 375
Bronze Gate

Fig. 1460
Iron Body
Gate

Fig. 178
Bronze Gate

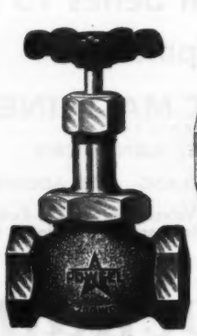


Fig. 110
Bronze Globe

Fig. 102
Bronze
Globe

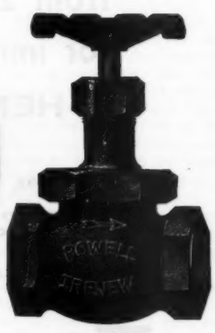


Fig. 171
Iron Body Globe

THE WM. POWELL CO.
2521-31 Spring Grove Ave. Cincinnati, Ohio

Engineering & Export Dept.
50 Church St. Room 260
New York, N. Y.

Chicago Office
E. F. Smith, Dist. Mgr.
400 N. Michigan Ave.

POWELL VALVES

Move Toward Larger But Fewer Gasoline Plants Given Impetus During the Past Year

* * * * * *

By W. T. Ziegenhain

DURING the past year the natural gasoline industry increased the total capacity of its plants but little. It did not follow the practice of previous years, each of which had added 1,000,000 gallons daily capacity since 1924. The total capacity remained near 10,500,000 gallons daily for the period.

This break in expansion is typical of all manufacturing industries when reviewing their developments over the past decade but the natural gasoline industry is having to face problems now in addition to those which came with the general depression.

The low average market price for its products has forced an unprecedented number of plants to be shut down. The capacity of the idle plants totaled 250,000 gallons a year ago whereas the idle capacity now approximates 800,000 gallons. Also, more than the usual number of plants were salvaged or abandoned. The total number of operating and shutdown plants has decreased from 987 May 1, 1931, to 948 on May 1, of this year.

The most noticeable development has been the trend toward superstabilizing the natural gasoline and the direct selling of this product to jobbers as motor fuel. This brings the natural gasoline manufacturer into direct competition with refiners and all manufacturers are now faced with making the decision whether to reduce the vapor pressure of all of their gasoline to a low level and sell it direct to jobbers or continue to attempt to sell to the refiner. The problem has been aggravated by the fact many of the larger manufacturers have or are affiliated with refining companies who operate their own motor fuel outlets.

Despite the need to first solve these marketing problems, there are forces now operating which distinctly favor the rapid recovery of the natural gasoline industry to a profit-making basis. Because of the inherent high antiknock value and volatility of natural gasoline it has developed public acceptance. Because of the flexibility of plant operations the industry can quickly and economically meet new demands. Motor car design over the future will apparently favor motor fuels of greater volatility in order that the motor manufacturer may offer "automatic starting" of the car by simply turning the key. Fuels of greater volatility will also simplify the problem of evenly distributing the gasoline in a multicylinder motor. Because motor manufacturers have favored increasing the number of cylinders they will also favor more volatile motor fuels.

The trend in the natural gasoline industry toward building and operating larger but fewer plants was given decided impetus in the past year according to the annual survey just completed by The Oil and Gas Journal. This survey, the details of which are published on the following pages, includes the capacity of each plant, its location in the field arranged by states, its status whether operating or shut down, and the name and address of the plant superintendent. In addition, a list of officers and executives for practically all of the companies is included.

The survey was completed as of May 1 and in the year covered since the previous survey the industry added only enough capacity at its plants to replace those plants which were salvaged or abandoned.

California and Texas added to the capacity of the plants while Oklahoma showed a reduction. These three states now hold 65 per cent of all capacity, and of these three, California continues to hold first place by a wide margin.

A review of the California natural gasoline industry for the year as shown by the survey typifies the general trend for the entire industry.

California's plant capacity was increased from 3,862,725 gallons daily a year ago to 4,014,430 gallons at present. This increase was made by building a few large plants and by increasing the size of the old ones. It was not done by increasing the number of plants, for the number of operating and shutdown units in California dropped from 154 to 143 during the year.

California Operations

The Standard Gasoline Co., a subsidiary of the Standard Oil Co. of California, offers the best example of the manner in which plant operations were shifted in the past year. During the year the company shut down 10 plants, but these had a combined capacity of only 78,800 gallons daily. Roughly, the average plant shutdown had a capacity of 8,000 gallons. The total number of operating plants now number but 29, but these have a combined capacity of 874,130 gallons daily or an average of 30,000 gallons per plant.

Not many years ago an 8,000-gallon plant was considered a fair sized unit even in California, but the facts presented in the survey leads to the conclusion that the industry distinctly favors the much larger units and will restrict operations in the future to those fields which will permit large units to be built and will not rush into the small fields as has been the general practice in past years. This does not apply to California operators but to those in the Mid-Continent. The reason is obvious for the large units may be constructed at a greatly reduced cost per 1,000 feet of gas processed and the cost of manufacture is greatly reduced per gallon of product.

Effect of Stabilizing

Another factor which is favoring the larger units is the matter of stabilization. Because the refiner and the jobber demand natural gasoline of low vapor pressure all manufacturers are being forced to provide an economical outlet for that portion of the gasoline removed. In other words, the natural gasoline industry is becoming involved in the manufacture and sale of by-products in the same manner as practically every other major industry. This in turn calls for equipment that responds to exacting control, unfailing over long periods of continuous operation and automatic in many of its phases. This kind of equipment involves relatively high investments and can be justified only in the larger units.

* * * * * * * * * * * * *

TREND IN NATURAL GASOLINE PLANT OPERATIONS

GROWTH BY YEARS

	No. of plants	Daily capacity (gallons)
May 1, 1932	948	10,536,182
May 1, 1931	987	10,531,511
May 1, 1930	1,071	9,541,320
May 1, 1929	1,124	8,695,727
May 1 1928	1,229	7,865,652
May 1, 1927	1,148	6,947,264
May 1, 1926	1,063	5,121,000
May 1 1925	1,143	4,642,561
May 1, 1924	1,012	3,396,961

PLANT CAPACITIES BY STATES

	—May 1, 1932—		—May 1, 1931—	
	No. of plants	Daily capacity	No. of plants	Daily capacity
Arkansas	12	97,950	14	118,950
California	143	4,014,430	154	3,862,725
Colorado	3	13,000	3	10,500
Illinois	71	50,995	68	52,767
Kansas	22	223,700	21	197,400
Kentucky	6	39,200	6	37,800
Louisiana	45	397,155	43	316,355
New Mexico	3	79,000	3	73,000
New York	3	1,900	4	3,100
Ohio	26	66,050	31	72,585
Oklahoma	230	2,359,265	242	2,823,312
Pennsylvania	143	118,947	133	89,660
Texas	137	2,449,100	140	2,296,883
West Virginia	95	404,530	117	396,514
Wyoming	9	167,960	8	179,960
Total	948	10,536,182	987	10,531,511

Note—May 1, 1931, includes 80 plants with 257,065 gallons daily capacity listed as shut down. May 1, 1932, includes 112 plants with 815,710 gallons daily capacity listed as shut down.

Texas Operations

Texas moved into second place in 1931 replacing Oklahoma in the matter of natural gasoline plant capacity. On May 1 Texas showed a total capacity of 2,449,100 gallons compared to 2,296,833 gallons a year ago. This is an increase of approximately 150,000 gallons. While this is not large compared to former years, Texas gained second rank because Oklahoma's plant capacity dropped from 2,823,312 gallons a year ago to 2,359,265 gallons this year, or nearly 500,000 gallons.

This increase in Texas was partly the result of adding two large plants in the new East Texas Field and increasing the capacity of some of the older plants, for the total number of units decreased from 140 to 137 during the past year. Plants in the Panhandle area continue to represent the great bulk of the total capacity in Texas and a relatively high proportion of these plants are operating.

Oklahoma Operations

The curtailing of production in the Oklahoma City and Seminole areas has brought about a temporary decline in natural gasoline plant building in Oklahoma. Those plants which were built in the Oklahoma City Field during its early development are operating at considerably less than their capacity and several large units remain idle.

The large potential production of crude and gas available in this field has acted as a stop on efforts to find and develop new fields in Oklahoma. Another factor which accounts for the decline in the Oklahoma plant capacity is that of plant size. Oklahoma has 230 plants, the largest number of units in any state.

A large proportion of these plants are small, and, consistent with the trends throughout the industry, companies are consolidating their operations and eliminating excess capacity where it is no longer needed. In a few instances several companies have pooled their gas and are running it to one plant in a given field and shutting down the other units. This practice promises to gain if the gasoline market continues to be depressed.

Personnel of Natural Gasoline Industry in the United States

ABBREVIATIONS:

Pres.—President
V. P.—Vice president
Secy.—Secretary
Treas.—Treasurer
S. Mgr.—Sales manager
P. A.—Purchasing agent
Gen. Mgr.—General manager
Mgr.—Manager
Gen. Supt.—General superintendent
Supt.—Plant superintendent
Ch. Chem.—Chief chemist
Ch. Engr.—Chief engineer
Dir. Mfr.—Director of manufacture

A

Airolene Gasoline Corp., 723 Kennedy Bldg., Tulsa, Okla.
Pres., Forrest E. Gilmore
V. P., Carl W. Gilmore
Secy. and Treas., H. O. Whitfield
Gen. Supt., Carl W. Gilmore
S. Mgr., Forrest E. Gilmore
Plant in Texas
Capacity 8,000.

Akin Gasoline Co. (The), 1801 Exchange National Bank Bldg., Tulsa, Okla.
Pres., J. H. McCoy
V. P., C. M. Withington
Secy. and Treas., H. R. Johnson
S. Mgr., A. J. Pfister
P. A., W. S. Cox
Plants in Oklahoma
Capacity 2,000.

Altitude Petroleum Corp., Kennedy Bldg., Tulsa, Okla.
Pres., Arthur Anson
V. P., M. L. Freese
Secy. and Treas., C. H. Warner, Jr.
Gen. Supt., R. W. Lind
Plants in Oklahoma and Kansas
Capacity 7,000.

Alum Rock Gas Co., National Transit Bldg., Oil City, Pa.
Pres., R. P. Stevens, 120 Broadway, New York City
V. P., J. H. Isherwood, Port Allegany, Pa.
Secy., J. C. Forsyth
Treas., C. R. Beddows, 120 Broadway, New York City
Act. Mgr., John A. Weiser
Plant in Pennsylvania
Capacity 200.

Amerada Petroleum Corp., 65 Broadway, New York City
Pres., A. Jacobsen
V. P., A. M. Blow
Secy., Robert Nock
Treas., E. P. Potter
Mgr., M. E. Mockly
Gen. Supt., H. W. Harts
P. A., Guy W. Edwards
Plants in Oklahoma and Texas
Capacity 58,000.

American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.
Pres., T. A. Tack
V. P. and Gen. Mgr., H. S. Tack
Secy., W. H. Siegfreid
Treas., A. V. Tack
Gen. Supt., Hohn Hays
Plants in West Virginia, Ohio and Illinois
Capacity 2,625.

Arab Gasoline Corp., Eastland, Tex.
Pres., Samuel Butler
V. P., P. T. Sharples
Secy. and Treas., W. E. Cox
Plant in Texas
Capacity 25,000.

Arkansas Natural Companies (including Arkansas Natural Gas Corp., Arkansas Fuel Oil Co. and Reserve Natural Gas Co. of Louisiana), Ardis Bldg., Shreveport, La.
Pres., H. L. Doherty
V. P., D. W. Harris
Secy., E. N. Watkins
Treas., B. R. Miurhead
Gen. Supt., K. E. Jones
Ch. Engr., J. H. Mobley
Plants in Louisiana, Arkansas and Illinois.
Capacity, 57,000.

B

Barnsdall Oil Co. of California, Petroleum Securities Bldg., Los Angeles, Calif.
Pres., R. A. Broomfield
V. P., E. O. Bartlett, W. C. Whaley, R. A. Broomfield, Jr.
Secy., James A. Dunn
Treas., E. O. Bartlett
Gen. Supt., O. Weaver
P. A., C. E. Good
Ch. Engr., R. B. Hastings.
Plant in California.
Capacity 65,000.

Barnsdall Oil Co., Petroleum Bldg., Tulsa, Okla.
Pres., E. B. Reeser
V. P., E. O. Bartlett and R. F. MacArthur
Secy., J. A. Dunn
Treas., L. D. Messer
Gen. Supt., A. J. Schlosser
S. Mgr., H. M. Edinger
P. A., O. E. McClatchey
Plants in Oklahoma and Kansas
Capacity 106,500.

Bartlett Gasoline Co., 313 Wright Bldg., and 1801 Exchange Bldg., Tulsa, Okla.
Pres., J. H. McCoy
V. P., Dean Foster
Secy. and Treas., H. R. Johnson
Gen. Supt., Dean Foster
S. Mgr., A. J. Pfister
P. A., Dean Foster.
Plant in Oklahoma.
Capacity 14,000.

Bell Oil & Gas Co., Kennedy Bldg., Tulsa, Okla.
Pres., S. L. Lubell
V. P., Albert Finston
Secy., Albert Finston
Treas., J. J. Lubell
S. Mgr., Albert Finston
P. A., C. E. Carieux
Plants in Oklahoma and Texas.
Capacity 50,000.

Big Lake Oil Co., 1400 Benedum-Trees Bldg., Pittsburgh, Pa.
Pres., Levi Smith, Texon, Tex.
V. P., J. A. Farquhar, A. B. Dally, Jr., W. W. Bruce and W. S. Hallanan
Secy., W. E. Huston
Treas., J. G. Farquhar
Gen. Supt., J. S. Postgate, Texon, Tex.
P. A., R. E. Johnson
Ch. Chem., J. C. Moore
Ch. Engr., J. D. Miller, Jr.
Plant in Texas
Capacity 50,000.

Bolsa Chica Oil Corp., 707 Richfield Bldg., Los Angeles, Calif.
Pres., William Ford
V. P. and Gen. Mgr., C. W. Lord
V. P., S. A. Reed
Secy., E. Ord Slater
Treas., S. A. Reed
Gen. Supt., F. J. Shaver.
Plants in California.
Capacity 25,000.

Brenneman & MacDonell, 312 South Cole St., Lima, Ohio
Gen. Supt., E. R. Perfect
Plants in Illinois
Capacity 1,250.

Bruner & Co. (A.), 312 Wright Bldg., Tulsa, Okla.
Mgr., A. Bruner
Gen. Supt., W. Avoa
S. Mgr. and P. A., A. Bruner
Plant in Illinois
Capacity 200.

C

Calumet Oil Co., 517 I. W. Hellman Bldg., Los Angeles, Calif.
Pres., J. E. Wallis
V. P., T. H. Collins, A. J. McDermott
Secy.-Treas., W. F. Staunton
Gen. Supt., J. C. Armstrong
Plant in California.
Capacity 1,000.

Canadian River Gas Co., Colorado Springs, Colo.
Pres., N. K. Moody, at Independence, Kans.
V. P., P. C. Spencer and A. R. Jones
Secy., V. A. Iobe
Treas., O. O. Holmgren
Gen. Mgr., Ford, Bacon and Davis, Inc.
Gen. Supt., G. A. Woods

Cannon Gasoline Co., Commerce Bldg., Amarillo, Tex.
Pres., J. J. Hastings
V. P., F. J. Storm
Secy., J. B. Dooley
Treas., F. J. Storm
Plant in Texas
Capacity 5,000.

Carbide & Carbon Chemicals Corp., 30 E., 42nd St., New York City
Pres., J. A. Rafferty
V. P., G. O. Crume, R. W. White, H. E. Thompson, J. W. McLaughlin and J. G. Davidson
Secy., A. C. Cornell
Treas., C. T. Ayers
S. Mgr., W. F. Reich, Jr.
Plants in West Virginia
Capacity 5,500.

Carter Oil Co. (The), Exchange National Bank Bldg., Tulsa, Okla.
Pres., C. H. Lieb
V. P., W. T. Funk, Richardson Pratt
Secy-Treas., J. L. Cluley
Gen. Supt., G. E. Edgett
S. Mgr., H. F. Miller
P. A., B. Gooderham
Ch. Chem., G. A. Shaner

Coline Gasoline Corp., Railway Exchange Bldg., Chicago, Ill.
Pres., J. H. Keefe
V. P., F. C. Ripley
Secy., A. J. Olmsted
Treas., H. Lankheet
Gen. Supt., H. E. Moulton
Plants in Oklahoma.
Capacity 80,000.

Clinger Oil & Gas Co., Tidioute, Pa.
Pres., A. V. Clinger
Secy., W. F. Clinger
Treas., W. F. Clinger
Plants in Pennsylvania
Capacity 1,500.

Coltexo Corp., Monroe, La.
Pres., F. F. Curtye
V. P., Edwin Bunney
Secy., R. L. Carr
Treas., G. L. Bubb
Gen. Supt., W. E. Reardon
S. Mgr., W. H. Anders
Ch. Chem., H. J. Hunter
Ch. Engr., A. T. Givens
Plants in Texas
Capacity 100,000.

Columbian Gasoline Corp., Monroe, La.
Pres., F. F. Curtye
V. P., Edwin Binney
Secy., Reid L. Can
Treas., Geo. L. Bubb
Gen. Supt., W. E. Reardon
S. Mgr., W. H. Anders
Ch. Chem., H. T. Hunter
Ch. Engr., A. T. Givens
Plants in Texas and Louisiana
Capacity 49,500.

Continental Oil Co., Ponca City, Okla.
Pres., D. J. Moran
V. P., W. H. Ferguson and W. W. Bruce
Secy., W. W. Bruce
Treas., G. F. Smith
Gen. Supt., D. C. Williams
S. Mgr., O. B. Loyd
P. A., W. H. O'Conner
Ch. Chem., A. Henriksen
Ch. Engr., E. O. Bennett
Plants in Oklahoma, Texas, Colorado, Wyoming and New Mexico
Capacity 160,200. Six of 11 plants listed operated in conjunction with other companies as shown under respective states.

Cosden, Inc., of Oklahoma (J. S.), 1700 Electric Bldg., Fort Worth, Tex.
Pres., J. S. Cosden
V. P., A. G. Reed
Secy. and Treas., J. J. Purcell
S. Mgr., F. E. English
P. A., E. E. Brogden
Ch. Engr., Thomas Bryan
Plants in Texas.
Capacity 51,000.
Company in receivership — Receivers George Moore, 1700 Electric Bldg., Fort Worth, Tex., and R. W. Kellough, Kennedy Bldg., Tulsa, Okla.

Crosbie & Moran, Inc., 1810 Exchange National Bank, Tulsa, Okla.
Pres., J. E. Crosbie
V. P., W. B. Moran
Secy., M. E. Church
Treas., W. B. Moran
Gen. Supt., F. M. Neely
Plants in Oklahoma
Capacity 37,000.

D

Deep Rock Oil Corp., Atlas Life Bldg., Tulsa, Okla.
Pres., J. J. O'Brien
V. P., J. L. Gray, R. J. Graf, L. B. Riddle, W. E. Moody, E. J. McKay and B. L. Majewski
Secy. and Treas., W. R. Francisco
Gen. Supt., C. L. Moss
S. Mgr., B. L. Majewski
P. A., R. G. Martin
Ch. Chem., B. Frichot
Plants in Oklahoma
Capacity 21,000.

Del Rey Oil & Refining Co., Ltd., 422 Washington Bldg., Los Angeles, Calif.
Rec., M. D. Woolery
Gen. Supt., H. V. Hoagland
Plant in California
Capacity 60,000.

Dempseytown Gas Co., National Transit Bldg., Oil City, Pa.
Pres., R. P. Stevenson, 120 Broadway, New York City
V. P., J. H. Isherwood, Port Allegany, Pa.
Plant in Pennsylvania
Capacity 200.

Devonian Oil Co., 618 Exchange National Bank Bldg., Tulsa, Okla.
Pres., J. H. Evans
V. P., A. W. Leonard and L. C. Ritts
Secy., G. O. Foster
Gen. Supt., E. S. Calvert
P. A., H. R. Dean
Plants in Oklahoma.

Dinsmoor & Co., 702 Second St., St. Marys, W. Va.
Pres., J. D. Dinsmoor
V. P., L. E. Dinsmoor
Secy. and Treas., W. P. Kerwood, Jr.
Plant in West Virginia
Capacity 380.

E

Eagle-Pitcher Mining & Smelting Co., 214 W. Third St., Joplin, Mo.
Pres., A. E. Bendelari
V. P., G. W. Potter
Secy.-Treas., Joseph Hummel, Jr.
S. Mgr., W. N. Corbet
Plant in Oklahoma.
Capacity 5,000.

Eason Oil Co., Bass Bldg., Enid, Okla.
Pres., T. T. Eason
V. P., L. D. Hindman
Secy. and Treas., T. W. Eason
Gen. Supt., A. W. Lindley
S. Mgr., R. H. Rowland
P. A., A. C. Hatton
Ch. Chem., G. B. Lyon
Plants in Oklahoma
Capacity 14,000.

Empire Gas & Fuel Co., Ltd., 80 N. Main St., Wellsville, N. Y.
Pres., Harry Bradley
Secy., J. B. Bradley
Treas., George H. Bradley
Gen. Supt., E. C. Harder
Plant in New York
Capacity 400.

Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.
Pres., H. L. Doherty
V. P., F. R. Coates, H. D. Fruecuff, W. A. Jones, H. R. Straight and A. W. Ambrose
Secy., C. E. Murray

TRET-O-LITE

PROCESS PATENTED

Treats Cut Oil at Initial Boiling Point of the Crude

Recovers All the Oil

Non-Injurious

No Costly Equipment

Dependable Service

Absolutely Guaranteed

A Formula for Every Form of Cut Oil

Rapid and Economical

TRETOLITE COMPANY

MANUFACTURING CHEMISTS

Plants and Laboratories

ST. LOUIS, MO.

DALLAS - - LOS ANGELES

REPRESENTATIVES IN ALL PRINCIPAL FIELDS

OGJ 5-19 Gray

Treas., R. L. Morton, Jr.
Supervisors, H. A. Ells, E. L. Stauffacher
S. Mgr., S. B. Crooks
P. A., G. A. Thompson
Plants in Oklahoma, Kansas and Texas
Capacity 300,500.

Equitable Gas Co., 435 Sixth Ave., Pittsburgh, Pa.
Pres., F. R. Phillips
V. P., F. F. Schauer
Gen. Supt., Judson Bonsall
P. A., C. W. Lepper
Plants in Pennsylvania
Capacity 4,500.

F

Field Gasoline Corp. (O. C.), 609 Board of Trade Bldg., Los Angeles, Calif.
Pres., O. C. Field
V. P., W. G. Metson and J. C. Burks.
Secy., N. J. Hale
Treas., R. B. Hale
Gen. Mgr. and P. A., J. C. Burks
Plants in California
Capacity 40,000.

Fleming (Joseph E.), Box 567, Titusville, Pa. J. E. Fleming, owner
Gen. Supt., B. H. Crippen
Plant in Pennsylvania
Capacity 500.

Fullerton Oil Co., R. F. D. No. 2, Box 72, Fullerton, Calif.
Pres., W. L. Valentine
V. P., W. F. Ball, H. M. Daily
Secy., V. T. Severns
Treas., W. L. Valentine
Plant in California.
Capacity 6,000.

G

General Petroleum Corp. of California, Higgins Bldg., Los Angeles, Calif.
Pres., J. A. Brown
V. P., R. A. Sperry, S. J. Dickey, W. L. McLaine, E. R. Rich
Secy., D. W. Woods
Treas., F. C. Adams
Mgr., R. C. Wheeler
S. Mgr. E. R. Rich
P. A., R. M. Ketchum
Ch. Chem., G. F. Olsen
Ch. Engr., V. F. Grace
Plants in California.
Capacity 290,000.

Getty Gasoline Co. (George F.), 1060 Subway Terminal Bldg., Los Angeles, Calif.
Pres., J. Paul Getty
V. P., E. Kluth
Secy. and Treas., R. M. Blodgett
Gen. Supt., B. A. Koehler
Ch. Chem., W. F. Crane
Ch. Engr., J. J. Murphy
Plant in California
Capacity 10,000.

Gilmore Gasoline Plant No. 1, 2423 East 28th St., Los Angeles, Calif.
Pres., E. B. Gilmore
Secy. and Treas., C. S. Beesmeyer
Plant in California
Capacity 30,000.

Gilmore-Dabney Gasoline Corp., 2423 East 28th St., Los Angeles, Calif.
Pres., E. B. Gilmore
Secy. and Treas., C. S. Beesmeyer
Plants in California
Capacity 90,000.

Gladewater Gasoline Co., Gladewater, Tex.
Pres., C. R. Starnes
Secy., F. W. Abshire
Treas., F. W. Abshire
Gen. Supt., W. G. Maness
S. Mgr., W. H. Harrison
Plants in Texas
Capacity 16,000.

Gould & Son (Nancy E.), R.F.D. 6, Butler, Pa.
Gen. Supt., F. B. Gould
Plant in Pennsylvania
Capacity 10.

Graham Oil & Gas Co., Graham, Tex.
Pres., Philip Wiseman
V. P., H. S. Mudd and L. W. Wickes
Secy., Treas and Gen. Supt., G. R. Paull
Ch. Engr., E. R. Marchman
S. Mgr., W. H. Anders
Plant in Texas
Capacity 8,000.

Grimes Gasoline Co., Tulsa, Okla.
Pres., Chas. W. Grimes
Secy. and Treas., Otha H. Grimes
Plants in Oklahoma
Capacity 13,000.

Gulf Production Co., Fort Worth, Tex.
Plants in Texas
Capacity 18,100.

Gypsy Oil Co., First National Bank Bldg., Tulsa, Okla.
V. P., K. Winship and Rush Greeslade
Asst. Secy., D. B. Catterlin
Asst. Treas., C. B. Clothier
Gen. Supt., S. G. Sanderson
P. A., V. C. Fuller
Plants in Oklahoma
Capacity 62,200.

H

Hanlon Gasoline Co., Box 1559, Tulsa, Okla.
Pres., E. I. Hanlon
V. P., J. H. Boyle
Secy., L. C. Holloway
Treas., J. H. Boyle
S. Mgr., A. P. Wood
P. A., J. H. Boyle
Ch. Chem., C. E. Benham
Ch. Engr., A. A. Hardee
Plants in Texas
Capacity 55,000.

Hapgood (R. T.), Security Bank Bldg., Charleston, W. Va. R. T. Hapgood, owner
Gen. Supt., P. A. and Ch. Engr., D. T. McClure
Plants in West Virginia
Capacity 4,000.

Harland Oil Co., Wolco, Okla.
Pres., W. W. Vensel
V. P., T. S. Loffland
Secy., C. O. Duve
Treas., J. M. Loffland
S. Mgr. and P. A., C. O. Duve
Ch. Engr., D. C. Bohnsack
Plants in Oklahoma
Capacity 2,400.

Henderson Co. (The), 818 McBirney Bldg., Tulsa, Okla.
Pres., F. C. Henderson
V. P., J. Wood Glass
Secy., F. C. Hall
Treas., E. P. Henderson
Ch. Engr., C. C. Cherry
P. A., F. C. Hall
Ch. Engr., C. C. Cherry
Plants in Arkansas and Texas
Capacity 31,000.

Herkness, (J. S.), Tenth and Lombard Sts., Philadelphia, Pa.
Pres., J. S. Herkness
V. P., L. C. Herkness
Secy., W. M. Unruh
Treas., L. C. Herkness
Plant in Pennsylvania.
Capacity 1,500.

Home Gas Co., 604 Main St., Clarion, Pa.
Pres., E. H. Banner
V. P., H. H. Arnold
Secy., M. M. Kaufman
Treas., Abe Kaufman
Gen. Supt., A. J. McCleary
P. A., Abe Kaufman
Plant in Pennsylvania.

Honolulu Oil Corp., Ltd., 215 Market St., San Francisco, Calif.
Pres., A. C. Dierickx
V. P., A. C. Mattei, William Alexander, C. E. Green, A. P. Welch, W. P. Roth
Secy., L. A. Cranson
Treas., W. P. Roth
Gen. Supt., R. R. McGuire
P. A., O. E. Cunningham
Ch. Chem., P. Kraft.
Plants in California.
Capacity 60,000.

Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa.
Pres., Christy Payne
V. P., J. B. Corrin and J. B. Tonkin
Secy., S. E. W. Burnside
Treas., R. D. Beardsley
Gen. Supt., L. L. Tonkin
P. A., F. O. LeRoy
Plants in West Virginia, Ohio and Pennsylvania
Capacity 131,000.

Humble Oil & Refining Co., Humble Bldg., Houston, Tex.
Pres., W. S. Farish
V. P., R. L. Blaffer, H. C. Wiess, James Anderson, W. W. Fondran and F. P. Sterling
Secy., F. A. Freese
Treas., R. L. Blaffer
Gen. Supt., G. H. L. Kent
S. Mgr., S. A. Giraud
P. A., J. M. Sitler
C. C., C. M. Gribble
Ch. Engr., C. M. Gribble
Plants in Texas
Capacity 142,000.

I

Indian Territory Illuminating Oil Co., Drawer 1, Bartlesville, Okla.
Pres., H. V. Foster
V. P., Burdette Blue, C. H. Caldwell, R. L. Gordon and A. V. Hoenig
Secy., E. B. Emenhiser
Treas., C. H. Caldwell
Gen. Supt., D. B. Dow
S. Mgr., G. V. N. Yates
P. A., A. M. Butcher
Ch. Chem., Dana Hefley
Plants in Oklahoma
Capacity 145,000.

J

Jennings Brothers Co., (E. H.), 608 Columbia Bldg., Pittsburgh, Pa.
Pres., R. G. Jennings
V. P., E. D. Jennings
Secy., E. H. Jennings
Treas., R. G. Jennings
Plants in Pennsylvania.
Capacity 2,350.

K

Kansas Gasoline Co., 1504 Exchange National Bank Bldg., Tulsa, Okla.
Pres., J. A. Hull
V. P., R. C. Riley
Secy., O. J. McCann
Treas. and P. A., P. F. Cole
Gen. Supt., J. L. Looney
Ch. Engr., W. A. Melton
Plant in Kansas
Capacity 5,000.

Kansas Gas & Gasoline Co. (The), Union Life Bldg., Saline, Kans.
Pres., C. A. Leland, Jr., Topeka, Kans.
V. P., H. L. Hanley and L. E. Fischer
Secy., D. H. Holmes
Treas., A. J. Berta
Gen. Supt., H. R. Otto
P. A., A. H. Purdy
Ch. Chem., R. B. McLaughlin
Ch. Engr., W. J. White
Sale of products handled through Altitude Petroleum Co.
Plants in Kansas
Capacity 25,000.

Kentucky Pipe Line Co. (Kentucky), 311 West Chestnut St., Louisville, Ky.
Pres., T. B. Wilson
V. P., J. J. McKenna, A. W. Lee and R. Montgomery
Secy., F. J. Pfeiffer
Treas., J. J. McKenna
Gen. Supt. and S. Mgr., J. A. Yunker
P. A., G. Davies
Plant in Kentucky
Capacity 2,600.

Kewanee Oil & Gas Co., 123 Broad St., Philadelphia, Pa.
Pres., W. M. Potts
Secy., R. B. Ashenfelter
Gen. Supt., T. B. Steele
Plants in Illinois.
Capacity 300.

L

La Salle Petroleum Co., 612 Wright Bldg., Tulsa, Okla.
W. J. Schnur & Phil D. Williams, Receivers.
Plant in Texas.
Capacity 8,000.

Lebow (C. H.), Atlas Life Bldg., Tulsa, Okla.
Gen. Supt. and P. A., Roy O. Neal
Plant in Oklahoma
Capacity 1,800.

Lisbon Gasoline Co., Inc., 211 Ardis Bldg., Shreveport, La.
Pres., O. J. Dykes
V. P., Geo. W. James
Secy., E. N. Watkins
Gen. Supt., Jesse White
Plants in Texas and Arkansas
Capacity 30,000.

Lomita Gasoline Co., 2901 Orange Ave., Long Beach, Calif.
Pres., F. R. Bain
V. P., A. T. Jergins, C. M. Cotton
Secy.-Treas., F. S. Wade
Gen. Supt., L. V. Cassaday
P. A., W. R. Davis
Plant in California.
Capacity 40,000.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex.
Pres., L. B. Denning
V. P., R. A. Crawford and F. L. Chase
Secy. and Treas., D. L. Cobb
Gen. Supt., J. R. Jarvis
S. Mgr., A. F. Garrett
P. A., B. R. Newbery
Plants in Texas
Capacity 87,000.

Lone Star Gasoline Co., 1915 Wood St., Dallas, Tex.
Pres., L. B. Denning
V. P., R. A. Crawford and F. L. Chase
Secy. and Treas., D. L. Cobb
Gen. Supt., J. R. Jarvis
S. Mgr., A. F. Garrett
P. A., B. R. Newbery
Plants in Texas
Capacity 128,000.

Los Nietos Producing & Refining Co., Ltd., 714 W. Tenth St., Los Angeles, Calif.
Pres., E. L. Doheny
V. P., C. W. Smith, R. S. Lytle
Secy.-Treas., R. M. Sands
Gen. Supt., R. S. Lytle
S. Mgr. R. S. Lytle
P. A., W. H. Pierce
Ch. Chem., H. B. Pawson
Plant in California.
Capacity 100,000.

Louisiana Oil Refining Corp., Ardis Bldg., Shreveport, La.
Pres., Henry L. Doherty
V. P. and Gen. Mgr., D. W. Harris
Secy., E. N. Watkins
Treas., B. R. Muirhead
Gen. Supt., K. E. Jones
Ch. Engr., J. H. Mobley
Plant in Louisiana
Capacity 20,000.

M

Magnolia Petroleum Co., Box 900, Dallas, Tex.
Pres., E. R. Brown
V. P. and Gen. Mgr., B. H. Stephens
Secy., Courtenay Marshall
Treas., W. C. Proctor
Gen. Supt., R. D. Hanley
Mgr., F. M. Lege, Jr.
P. A., J. P. David
Plants in Texas, Arkansas and Oklahoma
Capacity 115,950.

Mahutska Oil Co., Robinson State Bank, Robinson, Ill.
Pres., Alex U. McCandless
V. P., L. G. Niehoff
Secy. and Treas., John T. Smith
Gen. Supt., Alex U. McCandless
P. A., Alex U. McCandless
Plants in Illinois
Capacity 1,000.

Mars Co. (The), 306-8 Seneca St., Oil City, Pa.
Pres., G. E. Welker
V. P., A. C. Burwell
Secy., H. S. Rose
Treas., H. S. Rose
Gen., Supt., A. C. Burwell
S. Mgr., C. W. Gleason
P. A., M. J. Conner
Ch. Chem., J. R. Fay
Ch. Engr., C. W. Gleason
Plants in Pennsylvania
Capacity 21,300.

Masoneal Gasoline Co., Kennedy Bldg., Tulsa, Okla.
Pres., D. B. Mason
Secy. and Treas., E. E. Thompson
Gen. Supt., O. Reeves
Plant in Oklahoma
Capacity 1,500.

Mid-Continent Petroleum Corp., Cosden Bldg., Tulsa, Okla.
Pres., Jacob France
V. P., G. O. Moody
Secy., A. D. Kneale
Treas., Charles Klein
Gen. Supt., F. E. Kearney
P. A., C. A. Prichard
Plants in Oklahoma
Capacity 31,100.

Mid-Kansas Oil & Gas Co., Thompson Bldg., Tulsa, Okla.
Pres., R. J. Berry
V. P., W. W. Fleming
Secy., E. B. Redpath
Treas., F. A. Billstone
Gen. Supt., M. E. Wagner
P. A., W. R. Grown

Plants in Oklahoma and Texas
Capacity 31,000.

Midland Gasoline Co. (The), Box 67, Coleman, Tex.
Pres., F. C. Nickel
V. P., D. B. Cogswell
Secy. and Treas., H. T. McGown
Gen. Supt., P. L. McLaren
S. Mgr., F. C. Nickel
P. A., Charles Mercer
Ch. Chem., P. L. McLaren
Ch. Engr., W. R. Brown
Plant in Texas
Capacity 20,000.

Midwest Refining Co. (The), First National Bank Bldg., Denver, Colo.
Pres., T. A. Dines
V. P., G. H. Jaques, H. G. Naylor, H. C. Bretschneider
Secy., L. G. Truby
Treas., W. L. Greiner
S. Mgr., H. G. Naylor
P. A., A. G. Fidel
Ch. Chem., A. W. Buel
Ch. Engr., P. G. Weidner
Plants in Wyoming
Capacity 100,000.

Mohawk Petroleum Co., 806 Financial Center Bldg., San Francisco, Calif.
Pres., A. L. Marsten
V. P., Roy A. Lee, E. V. McKenzie
Secy., Miss L. M. Graves
Gen. Supt., V. K. Douglas
Plant in California.
Capacity 10,000.

Montgomery, J. B., McKees Rocks, Pa.
Secy., Bert Noble
Treas., S. H. Morgan
S. Mgr., Bert Noble
P. A., Bert Noble
Ch. Engr., A. A. Bock
Plant in Pennsylvania
Capacity 100.

Moon Gasoline Co., 624 South Cheyenne St., Tulsa, Okla.
V. P., C. P. Quinlan
Secy., J. L. Goddard
Treas. and Gen. Supt., M. F. Powers
S. Mgr., E. C. Sager
P. A., G. A. Keefe
Plants in Oklahoma
Capacity 2,000.

Muskingum Oil Co., Sistersville, W. Va.
Plant in Ohio
Capacity 1,000.

N

National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.
Pres., F. W. Finley
V. P., H. M. Brown
Secy.-Treas., M. E. Eberle
Gen. Supt., H. A. Frame
Plants in Oklahoma.
Capacity 9,450.

National Supply Co. of Texas (The), Toledo, Ohio
Pres., John M. Wilson
V. P., J. A. Geismar
Secy. and Treas., Charles A. Meyer
Gen. Supt., A. V. B. Candler
Ch. Chem., Sam Rogers
Ch. Engr., O. D. Hardaway
Plants in Texas
Capacity 10,000.

Neal Gasoline Co., 507 Atlas Life Bldg., Tulsa, Okla.
Treas., H. B. Neal
Gen. Supt. and P. A., Roy O. Neal
Ch. Engr., H. B. Neal
Plants in Oklahoma
Capacity 5,300.

New York Oil Co., 441 South Center St., Casper, Wyo.
Pres., C. A. Munroe
V. P., J. M. McIntire
Secy., C. H. Lavin
Treas., W. A. Blind
Gen. Supt., L. T. Kreuger
P. A., E. L. Hollis
Plant in Wyoming
Capacity 1,500.

Nolan and Lamberton, 212 South Olympia St., Tulsa, Okla.
Partnership
Plant in Illinois
Capacity 50.

North American Oil Consolidated, 351 California St., San Francisco, Calif.
Pres., T. C. Kierulff
V. P., H. B. Sperry
Secy., Frank Evans
Gen. Supt., A. B. Jenks
Plant in California.
Capacity 3,000.

North Penn Gas Co., Port Allegany, Pa.
Pres., R. P. Stevens
V. P., J. H. Isherwood, C. T. Crippen
Secy., J. C. Forsyth
Treas., C. R. Beddows
Gen. Supt., Lewis F. Schlosser
Plant in Pennsylvania
Capacity 600

Norwalk Co. (The), 634 S. Spring St., Los Angeles, Calif.
Pres., Lionel T. Barneson
V. P., H. J. Barneson
Secy., W. E. Kropp
Gen. Supt., E. L. Tobias
P. A., H. M. Paulson
Plants in California.
Capacity 224,000.

O

Ockland Gasoline Prod. Co., 607 McBirney Bldg., Tulsa, Okla.
Plant in Texas
Capacity 4,000.

Ohio Oil Co. (The), 537-539 South Main St., Findlay, Ohio
Pres., O. D. Donnell
V. P., C. L. Fleming, R. J. Berry, J. K. Kerr and John McFadyen
Secy., E. B. Redpath
Treas., F. A. Billstone
Plants in Louisiana, Wyoming, Illinois and California
Capacity 99,538.

Ohio Producing & Refining Co. (The), 1405 East Sixth St., Cleveland, Ohio
Pres., John J. McMahon
V. P., Christy Payne
Secy., W. H. Holtz
Treas., W. H. Holtz
Gen. Supt., C. F. Turner
P. A., G. H. Horsley
Plant in Ohio
Capacity 6,000.

Oil & Gas Co., (The), 318 Juliana St., Parkersburg, W. Va.
Pres., Reese Blizzard
V. P., A. D. Ireland
Secy., Ross Wells
Treas., T. G. Reitz
Gen. Supt., Ira Williams
P. A., Ira Williams
Plant in West Virginia
Capacity 250

Oil State Gasoline Co., 424 South Cheyenne St., Howard Bldg., Tulsa, Okla.
Pres., Oscar R. Howard
V. P., Henry Greis
Secy., W. J. Zollinger
Gen. Mgr., John M. Hall
Plants in Oklahoma
Capacity 4,500.

Orfic Gasoline Prod. Co., 607 McBirney Bldg., Tulsa, Okla.
Plant in Texas
Capacity 4,000.

P

Pacific American Gasoline Co. of Texas, Borger, Tex.
Pres., H. W. Price
V. P., Walter David
Secy., W. B. Vaines
Gen. Supt., C. B. Rose
Ch. Engr., H. W. Price
Plant in Texas
Capacity 16,000.

Pacific Western Oil Co., 714 W. Tenth St., Los Angeles, Calif.
V. P. R. R. Templeton
Secy. H. O. Ravis
Treas., R. J. Pagen
Gen. Supt., S. F. Magor
P. A., J. M. Grant
Plants in California.
Capacity 67,500.

Pan California Gasoline Co., 719 Security Bldg., Los Angeles, Calif.
Pres., Robert Bromberg
V. P., L. C. Kelly
Secy., Harold Morton
Treas., M. V. Kelly
Gen. Supt., J. L. Dunn
Plant in California
Capacity 15,000.

Pan California Oil Corp., 719 Security Bldg., Los Angeles, Calif.
Pres., Robert Bromberg, Receiver
Gen. Supt., J. L. Dun
Plant in California
Capacity 5,000.

Paramount Natural Gasoline Co., Hunt Bldg., Tulsa, Okla.
Pres., Joe Danciger
V. P., Jack Danciger
Secy., J. E. Vaeth
Treas., A. Danciger
P. A., J. E. Vaeth
Plant in Texas.
Capacity 16,000.

Phillips Petroleum Co., Phillips Bldg., Bartlesville, Okla.
Pres., Frank Phillips
Chair. Ex. Comm., L. E. Phillips
V. P., J. H. Kane, Clyde Alexander, H. Davis, H. E. Koopman, J. M. Sands, H. A. Trower, G. P. Dimit, P. J. McIntyre, F. E. Rice, C. R. Musgrave
Gen. Mgr. Clyde Alexander
Secy. and Treas., O. K. Wing
Gen. Supt., George P. Bunn
S. Mgr., H. A. Trower
P. A., H. E. Koopman
Ch. Chem., R. C. Alden
Ch. Engr., A. H. Riney
Plants in Oklahoma, Texas, Kansas and New Mexico.
Capacity 1,329,500.

Philmore Gasoline Corp., 723 Kennedy Bldg., Tulsa, Okla.
Pres., Forrest E. Gilmore
V. P., F. E. Rice
Secy. and Treas., C. N. Gilmore
Plant in Texas
Capacity 1,500.

Pittsburgh & West Virginia Gas Co., 435 Sixth Ave., Pittsburgh, Pa.
Pres., F. R. Phillips
V. P., F. F. Schauer
Gen. Supt., Judson Bonsall
P. A., C. W. Lepper
Plant in West Virginia
Capacity 3,000.

Powers, M. F., 624 South Cheyenne St., Tulsa, Okla.
Owner, M. F. Powers
S. Mgr., E. C. Sager
P. A., G. A. Keefe
Plants in Oklahoma
Capacity 4,500.

Powers and Quinlan, 624 S. Cheyenne Ave., Tulsa, Okla.
Pres., (Partnership, M. F. Powers and Felix Quinlan, Jr.)
Gen. Supt., Felix Quinlan
S. Mgr., E. C. Sager
P. A., G. A. Keefe
Plants in Oklahoma
Capacity 2,000.

President Oil Co., Emlenton, Pa.
Pres., H. J. Crawford
Secy.-Treas., J. E. Taylor
Plants in Pennsylvania
Capacity 750.

Preston Oil Co. (The), 99 North Front St., Columbus, Ohio
Pres., C. I. Weaver
V. P., T. H. Kerr and W. L. McCloy
Secy., P. A. Alberty
Treas., L. A. Seyfert
Gen. Supt., George Kock
S. Mgr., R. M. Clark
P. A., G. R. Miller
Ch. Chem., R. J. Schuster
Ch. Engr., George Koch
Plants in Ohio
Capacity 55,000.

Producers & Refiners Corp., Prairie Bldg., Independence, Kans.
Pres., L. R. Crawford
V. P. and G. Mgr., John Fertig
Secy., A. W. Heinemann
Treas., O. O. Holgren
Gen. Supt., J. A. Sartori
S. Mgr., A. T. Smith
P. A., C. D. Wells
Ch. Chem., A. B. Lort
Ch. Engr., H. L. Hays
Plant in Wyoming
Capacity 15,000.

Producers Gas Co., First National Bank Bldg., Olean, N. Y.
Pres., E. H. Wright
V. P., J. B. Bradley
Secy. and Treas., F. W. Herron
Gen. Supt., E. M. Johnson
Ch. Engr. E. M. Johnson
Plant in New York
Capacity 1,000.

Pure Oil Co. (The), 35 East Wacker Drive, Chicago, Ill.
Pres., H. M. Dawes
V. P., W. E. Hutton, R. W. McIlvain, C. B. Watson, N. H. Weber, L. S. Wescoat, F. S. Heath, Rawleigh Warner
S. Mgr., R. H. McElroy
P. A., G. L. Parsons
Ch. Chem., R. C. Osterstrom
Ch. Engr., D. E. Sullivan.
Plants in Oklahoma, West Virginia and Texas.
Capacity 79,700.

R

Rainbow Gasoline Corp., 818 McBirney Bldg., Tulsa, Okla.
Pres., D. S. Brooks
V. P., D. P. Hamilton
Secy., F. C. Hall
Treas., F. C. Henderson
S. Mgr. and P. A., F. C. Hall
Ch. Engr., C. C. Cherry
Plant in Arkansas
Capacity 7,000.

Red Bush Oil Co., 10 Walnut St., Tidioute, Pa.
Secy. and Treas., C. E. Gesin
Ch. Engr., Carl Sibble
Plant in Pennsylvania.
Capacity 100.

Reno Oil Co., Wells Bldg., Sisterville, W. Va.
Pres., J. P. Flynn
V. P., T. B. Gregory
Secy. and Treas., W. R. Reitz
Gen. Supt. and P. A., J. P. Flynn
Plants in West Virginia
Capacity 352.

Reservoir Hill Gasoline Co., 417 South Hill St., Los Angeles, Calif.
Pres., L. E. Lockhart
V. P., A. M. Lockhart
Secy., L. M. Lockhart
Treas., C. S. Jones
S. Mgr., J. M. Reed
Gen. Supt., R. E. Wells
P. A., H. H. Kelly
Plant in California
Capacity 25,000.

Reserve Gas Co., 545 Wm. Penn Way, Pittsburgh, Pa.
Pres., J. B. Tonkin
V. P., T. B. Gregory
Secy., S. E. W. Burnside
Treas., R. D. Beardsley
Gen. Supt., L. L. Tonkin
P. A., F. O. LeRoy
Ch. Chem., Dr. J. B. Garner
Ch. Engr., H. C. Cooper
Plant in West Virginia
Capacity 20,000.

Rice Ranch Oil Co., 262 S. Los Angeles St., Los Angeles, Calif.
Pres., G. W. Litchenberger
V. P., Alfred J. Bayer, E. T. Off
Secy., A. B. Ellis
Treas., H. G. Phillips
Gen. Supt., Edgar Craig
Plant in California.
Capacity 1,000.

Rio Grande Oil Co., 417 South Hill St., Los Angeles, Calif.
Pres., L. E. Lockhart
V. P., L. M. Lockhart, C. S. Jones and A. M. Lockhart
Secy., L. M. Lockhart
Treas., C. S. Jones
S. Mgr., J. M. Reed
Gen. Supt., R. E. Wells
P. A., H. H. Kelly
Plant in California
Capacity 30,000.

Roeser & Pendleton, Inc., 613 Fort Worth Club Bldg., Fort Worth, Tex.
Pres., Charles F. Roeser
V. P., T. T. Pendleton and M. R. Young
Secy., H. B. Owens
Treas., H. B. Owens
Gen. Supt. (at Albany, Tex.), G. P. Crutchfield
Plant in Texas
Capacity 25,000.

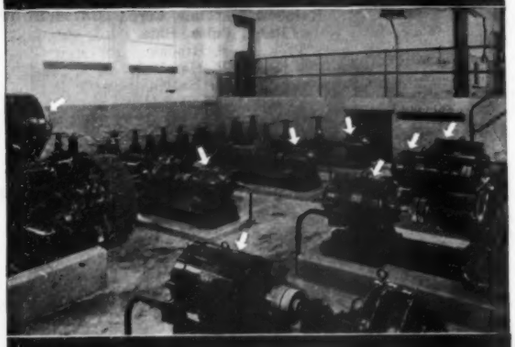
Ryan & Hackett Co., Inc., 623 Taft Bldg., Los Angeles, Calif.
Pres., G. P. Ryan
V. P., H. A. Hackett
Secy. and Treas., J. H. Haring
Plant in California
Capacity 3,000.

S

Sand Hill Lease, Tidioute, Pa.
Partnership
Plant in Pennsylvania
Capacity 500.

St. Helens Petroleum Co., Ltd. (The), Los Angeles, Calif.
Ch. of Board, C. B. Stocken
Dir., William Ivey and A. F. Strickland
Gen. Mgr., Charles Drader

"MORE THAN HORSEPOWER"



Louis Allis "Explosion-Proof" motors driving centrifugal pumps handling gasoline in a large Rocky Mountain refinery.

SAFETY to
Man and Property

Approved by Underwriters' Laboratories for Class I, Group D hazardous locations.

with LOUIS ALLIS
EXPLOSION-PROOF MOTORS

"Horsepower" is a poor measure of the real duty and value of an electric motor . . . especially when operating in a refinery filled with gasoline vapors.

The *right* motor for refinery service . . . more than a faithful power servant . . . a guardian of human life and property . . . was created by Louis Allis in 1927 . . . the first "Explosion-Proof" Fan-Cooled motor.

Now used in hundreds of refineries all over the world, the L.A. "Explosion-Proof" motor shows the value of designing motors for *definite results.*

You name the job. We'll furnish the *right* motor . . . *quickly.*

Standard Single or Multi-Speed

Self-Cleaning

Drip-Proof

Pipe-Ventilated

Totally Enclosed Fan-Cooled

Wound-Rotor

Direct Current

Vertical

Hoist Type

Arbor Type

Explosion-Proof Air-Break Starter

SINCE 1901

STANDARD AND CUSTOM BUILT MOTORS

THE LOUIS ALLIS CO., MILWAUKEE, WIS.

THE LOUIS ALLIS COMPANY, 429 E. Stewart St., Milwaukee, Wis.
Please send me descriptive information and your recommendation on the *right* motor to drive: _____
Mr. _____ Company _____
Address _____

Secy., R. H. Young
Gen. Supt., C. Z. Webb
S. Mgr., C. N. Collins
P. A., W. C. Cowie
Ch. Chem., C. W. Spark
Ch. Engr., C. Z. Webb
Plants in California
Capacity 3,250.

Say, George K., Owner.
Plant in Pennsylvania
Capacity 40.

Shamrock Oil & Gas Co., Amarillo Bldg., Amarillo, Tex.
Pres., J. J. Sheerin
V. P., J. M. Baldudge and H. C. Fownes
Secy., J. M. Baldudge
Treas., J. B. Orr
Gen. Supt., E. C. Will
Ch. Chem., J. B. Orr, Jr.
Plant in Texas
Capacity 15,000.

Shell Oil Co., 200 Bush St., San Francisco, Calif.
Pres., C. Legh-Jones
Secy., A. R. Bradley
Treas., John Lander
P. A., J. S. Story
Plants in California.
Capacity 256,000.

Shell Petroleum Corp., Shell Bldg., St. Louis, Mo.
Pres., R. G. A. Van der Woude
V. P., T. F. Lydon, Richard Airey, H. H. Henderson, A. Fraser, Dr. W. van Holst Pellekaan, G. S. Rollin, L. van Eeghen, Dr. F. W. L. Tydeman
Secy., P. R. Chenoweth
Treas., T. F. Lydon
Gen. Supt., S. S. Smith
S. Mgr., L. van Eeghen
P. A., C. B. Singleton
Plants in Oklahoma, Kansas, Texas and New Mexico.
Capacity 134,000.

Signal Hill Gasoline Co., 555 South Flower St., Los Angeles, Calif.
Pres., R. W. Walsh
V. P., A. M. Kelly and J. S. Wallace
Secy. and Treas., G. P. Lyons
Gen. Mgr., H. R. Linhoff
Ch. Chem., M. L. Arnold
Ch. Engr., D. M. Hodges
Plants in California
Capacity 184,000.

Signal Gasoline Co.
Pres., S. B. Mosher
V. P., R. H. Green, O. W. March and Ross McCollum
Secy., H. J. March
Treas., O. W. March
Gen. Supt., R. W. Heath
S. Mgr., R. E. Ahlport
P. A., J. F. Thies
Ch. Engr., G. L. Young
Plant in Texas
Capacity 50,000.

Signal Oil & Gas Co., 811 West Seventh St., Los Angeles, Calif.
Pres., S. B. Mosher
V. P., R. H. Green, O. W. March and Ross McCollum
Secy., H. J. March
Treas., O. W. March
Gen Supt., R. W. Heath
S. Mgr., R. E. Ahlport
P. A., J. F. Thies
Ch. Engr., G. L. Young
Plants in California
Capacity 70,000.

Silurian Oil Co., Missouri Pacific Bldg., St. Louis, Mo.
Pres., B. O. Mahaffey
V. P., C. F. Buchner
Secy. and Treas., E. R. Christman
Gen. Supt., Dee Miller
Ch. Engr., R. E. Hilpert
Plant in Oklahoma
Capacity 1,200.

Simms Oil Co., Magnolia Bldg., Dallas, Tex.
Pres., E. T. Moore
V. P., F. R. Schneider
Secy., L. W. Richarls
Treas., D. H. Voss
Gen. Supt., Frank Gardner
S. Mgr., F. R. Schneider
P. A., J. W. Morrison
Ch. Engr., Frank Gardner
Plants in Arkansas
Capacity 10,000.

Sinclair Oil & Gas Co., Sinclair Bldg., Tulsa, Okla.
Pres., H. L. Phillips
V. P., W. W. Baker
Secy. and Treas., E. A. Barrus
Gen. Supt., C. L. Brown
S. Mgr., A. T. Sherer
P. A., H. A. Woodard
Ch. Chem., J. L. Gallagher
Ch. Engr., E. A. Wooden
Plants in Oklahoma and Kansas
Capacity 368,000.

Skelly Oil Co., Fourth and Boulder, Tulsa, Okla.
Pres., W. G. Skelly
V. P., C. C. Herndon, H. M. Stalcup, R. T. Lyons and W. T. Atkins
Secy. and Treas., F. T. Hopp
Gen. Supt., Emby Kaye
S. Mgr., J. F. Nagle
P. A., F. W. Robertson
Ch. Chem., J. W. Vaiden
Plants in Oklahoma and Texas
Capacity 97,500.

Sloan & Zook Co. (The), 101 Main St., Bradford, Pa.
Pres., R. T. Zook
V. P., W. M. Sloan
Secy., C. T. Richardson
Treas., W. J. Sloan
Gen. Supt. and S. Mgr., Paul H. Zook
P. A., W. A. Vernon
Plant in Pennsylvania
Capacity 1,500.

Snowden & McSweeney Co., 598 Madison Ave., New York City
Pres., H. McSweeney
V. P., J. P. Shannon
Secy., Pearl M. Snowden
Treas., Marie H. Wright
Gen. Supt., A. E. Baldwin
Plant in Illinois
Capacity 1,000.

South Plains Pipe Line Co., Lubbock, Tex.
Pres., A. R. Jones
V. P., George Baird
V. P. and Gen. Mgr., C. R. Miner
Secy., A. W. Heinemann
Treas., O. O. Holgren
P. A., H. E. Kimbell
Plant in Texas
Capacity 35,000.

Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.
Pres., E. B. Reeser
V. P. and Secy., J. A. Dunn
Treas., E. O. Bartlett
P. A., H. F. McQuiston
Plants in Pennsylvania, West Virginia and Ohio
Capacity 2,750.

Southland Gasoline Co., 417 W. Sixth St., Tulsa, Okla.
Pres., B. J. Arbon
V. P., H. M. Preston
Secy.-Treas., B. J. Arbon
Plant in Oklahoma.
Capacity 2,000.

Southwest Production Co., 123½ W. Seventh St., Bristow, Okla.
Pres., F. W. Woodcock
V. P., E. A. Feldtkeller
Secy. and Treas., C. D. Perry
Gen. Supt., A. W. Conover
Ch. Engr., A. C. Wright
Plant in Oklahoma.
Capacity 2,000.

Standard Gasoline Co., 225 Bush St., San Francisco, Calif.
Pres., K. R. Kingsbury
V. P., W. H. Berg, R. W. Hanna, A. S. Russell
Secy., J. H. Tuttle
Treas., V. F. Palmer
Plants in California
Capacity 940,630.

Stanolind Oil & Gas Co., Philcade Bldg., Tulsa, Okla.
Pres., F. O. Prior
V. P., A. M. McCorkle and E. F. Bullard
Secy., F. J. Keleher
Treas., F. J. Keleher
Gen. Supt., D. C. Harman
S. Mgr., F. J. Keleher
P. A., W. L. James
Ch. Engr., G. S. Bays
Plants in Oklahoma, Louisiana and Texas
Capacity 68,000.

State Gasoline Corp., 900 Spring Arcade Bldg., Los Angeles, Calif.
Pres., J. W. Jameson
V. P., M. P. Simon
Secy.-Treas., S. W. McComb
Gen. Supt., K. G. Steinbeck
Plants in California.
Capacity 57,500.

Stranahan & Chevvront, 405 West Main St., Oblong, Ill.
Secy., Treas., Gen. Supt., P. A., A. B. Cheuvront
Plants in Illinois
Capacity 75.

Success Oil Co., 503 W. Elm St., Titusville, Pa.
Pres., George H. Davis
Plant in Pennsylvania
Capacity 1,500.

Sunray Oil Co., Seventh Floor Philcade Bldg., Tulsa, Okla.
Pres., C. H. Wright
V. P., R. P. Abele
Secy., W. D. Foster
Treas., W. D. Foster
Gen. Supt., V. C. Langford
S. Mgr., F. L. Martin
P. A., R. P. Abele
Ch. Chem., V. C. Langford
Plant in Texas
Capacity 9,000.

Superior Oil Corp., 315 Exchange National Bank Bldg., Tulsa, Okla.
Pres., John Rogers, Receiver
Gen. Supt., Frank Neely
Plants in Oklahoma
Capacity 20,000.

Sutton Brothers, Inc., 1370 Ridge Ave., Steubenville, Ohio
Pres., H. L. Sutton
V. P., C. E. Sutton
Secy. and Treas., N. A. Sutton
Plant in West Virginia
Capacity 200.

Swiss Oil Corp., 402 Wolf Wile Bldg., Lexington, Ky.
Pres., Thos. A. Combs
V. P., E. L. McDonald
Secy. and Treas., James H. Combs
Gen. Supt., E. L. McDonald, Jr.
P. A., G. E. Waples
Plant in Kentucky
Capacity 2,000.

T

Test Oil Co., Bartlesville, Okla.
Pres., M. R. Moran
Plant in Oklahoma.
Capacity 500.

Texas Company (The), General Offices, Houston, Tex.
Pres., R. C. Holmes
V. P., C. B. Ames, T. J. Donoghue, F. T. Manley, G. L. Noble, R. Ogarrio, T. Rieber and W. S. S. Rodgers
Secy., E. M. Crone
Treas., C. E. Woodbridge
P. A., A. F. Colling
Plants in Oklahoma, Texas, Kansas and Louisiana
Capacity 178,600.

Texas Company, California (The), 929 South Broadway, Los Angeles, Calif.
Pres., R. C. Holmes
V. P., C. E. Olmstead, J. A. Bermingham, R. T. Herndon, W. K. Holmes, and W. S. S. Rogers
Secy., E. M. Crone
Treas., W. E. Woodbridge
S. Mgr., R. T. Herndon
P. A., C. W. Chandler
Plants in California
Capacity 215,000.

Texas Pacific Coal & Oil Co., 1710 Fort Worth National Bank Bldg., Fort Worth, Tex.
Pres., E. J. Marston
V. P., E. R. Lederer and O. E. Mitchell
Secy. and Treas., R. Seibel
Gen. Supt., Dean Hiatt
S. Mgr., F. T. Bostaph
P. A., J. C. Davis
Ch. Chem., E. W. Zublin
Ch. Engr., H. H. Pruitt
Plants in Texas
Capacity 40,000.

Texoma Natural Gas Co., 20 North Wacker Drive, Chicago, Ill.
V. P., Floyd C. Brown
Gen. Mgr., Floyd C. Brown
Treas., C. C. Kelly
Gen. Supt., S. E. Campbell
P. A., J. Lucas
Ch. Chem., E. Hammerschmidt
Ch. Engr., G. M. Davidson
Plant in Texas
Capacity 80,000.

Thomas, R. L., Owner, 290 Main St., Tidioute, Pa.
Plant in Pennsylvania
Capacity 200.

Tidal Refining Co., Box 2049, Tulsa, Okla.
Pres., Noel Robinson
V. P., C. R. Barton
Secy., Y. P. Broome
Treas., K. R. Hankinson
Gen. Supt., C. R. Barton
S. Mgr., J. W. Warner
P. A., P. W. Fenton
Ch. Chem., R. W. Boyd
Ch. Engr., M. D. Harris
Plants in Oklahoma
Capacity 30,000.

Tompsett Brothers, Tidioute, Pa.
Pres., W. C. Tompsett
Plant in Pennsylvania
Capacity 200.

Triangle Co., McKees Rocks, Pa.
Pres., J. B. Montgomery
Secy., Bert Noble
Treas., S. H. Morgan
Ch. Engr., A. A. Bock
Plant in Pennsylvania
Capacity 300.

Triangle Co., McKees Rocks, Pa.
Pres., J. B. Montgomery
Secy., Bert Noble
Treas., S. H. Morgan
S. Mgr., Bert Noble
P. A., Bert Noble
Ch. Engr., A. A. Bock
Plant in Pennsylvania
Capacity 300.

Triumph Petroleum Co., Route 3, Tidioute, Pa.
Copartnership
E. R. Johnson, one of partners.
Plant in Pennsylvania
Capacity 175.

Tuel & Thoenen, Sistersville, W. Va.
Plants in West Virginia
Capacity 200.

Tyler Oil Co., Sistersville, W. Va.
Pres., H. J. Crawford
V. P., J. P. Flynn
Secy., Nell B. McCoy
Gen. Supt., J. P. Flynn
Plants in West Virginia and Ohio
Capacity 75

U

Union Gasoline Co., Security National Bank Bldg., Independence, Kans.
Pres., Paul R. Johnson
V. P., D. W. Stewart
Secy., V. F. Palmer
Treas., H. F. Mitchell
Gen. Supt., C. A. Lloyd
S. Mgr., H. F. Mitchell
P. A., W. L. Orr
Ch. Chem. and Ch. Engr., J. D. Copeland
Plant in Oklahoma
Capacity 2,500.

Union Gas Products, Inc., 710 Ouchita Bank Bldg., Monroe, La.
Pres., D. S. Lansden
V. P., C. M. Rose
Secy., Henry Bernstein
Treas., D. S. Lansden
Gen. Supt., H. C. Walton
P. A., H. C. Walton
Plant in Louisiana.
Capacity 6,000.

Union Oil Co. of California, 617 West Seventh St., Los Angeles, Calif.
Pres., L. P. St. Clair
V. P., R. D. Mathers, W. W. Orcutt, P. N. Boggs, W. L. Stewart, Jr., and P. M. Gregg
Secy. John McPeak
Treas., J. M. Rust
Dir. of Mfr., R. E. Haylett
Dir. of Sales, V. H. Kelly
Mgr. of Purch., H. C. Farquhar
Plants in California
Capacity 237,750.

United Carbon Co., Union Bldg., Charleston, W. Va.
Pres., Oscar Nelson
V. P., G. A. Williams
Secy., C. H. McHenry
Treas., T. A. Whalen
Gen. Supt., H. E. Norrick
S. Mgr., A. G. Treadgold
P. A., C. A. Urban
Ch. Chem., E. P. W. Kearsley
Ch. Chem. H. E. Norrick
Plants in Louisiana
Capacity 20,000.

United Gas Public Service Co., P. O. Box 1760, Houston, Tex.
Pres., N. C. McGowen
V. P., R. H. Hargrove and J. V. Strange
Secy., George D. Fiser
Treas., R. E. Hull
Gen. Supt., F. L. Rhoades
Mgr., G. M. Campbell
P. A., R. A. Reeder
Ch. Chem., W. F. Fulton
Ch. Engr., A. D. Greene
Plants in Louisiana and Texas
Capacity 171,800.

U. S. Carbon Co., 123 E. Pine St., Bastrop, La.
V. P., W. J. Parkes
Secy., L. W. Burrow
Treas., R. B. Todd
Gen. Supt., Ed Parkes
P. A., R. F. McBride
Plant in Louisiana.
Capacity 2,000.

Universal Consolidated Oil Co., Richfield Bldg., Los Angeles, Calif.
Pres., O. H. Muller, Jr.
V. P., E. G. Starr and R. D. Montgomery
Secy. and Treas., J. S. Wallace
Plant in California
Capacity 2,000.

V

Victor Gasoline Co., 624 South Cheyenne Ave., Tulsa, Okla.
Pres., M. F. Powers
V. P., C. P. Quinlan
Secy., A. D. Blackard
Treas., Felix Quinlan
Gen. Supt., T. N. Rutherford
S. Mgr., E. S. Sager
P. A., G. A. Keefe
Plants in Oklahoma
Capacity 11,000.

Vincennes Oil & Gas Co., Vincennes, Ind.
Pres., E. M. Kerlin
V. P., C. E. Kerlin
Secy. and Treas., R. D. Green
Gen. Supt., E. M. Kerlin
P. A., R. D. Green
Plant in Illinois
Capacity 5,000.

W

Waggoner Gasoline Co., Electra, Tex.
Pres., W. T. Waggoner, Sr.
V. P., G. L. Waggoner
Secy. and Treas., E. P. Waggoner
Gen. Supt., A. E. Stuard
S. Mgr., H. D. Jenkins
P. A., J. T. McNamera
Plant in Texas
Capacity 20,000.

Wahl, A. R., 249 Main St., Evans City, Pa.
Owner, A. R. Wahl
Gen. Supt., F. B. Wahl
Plant in Pennsylvania
Capacity 150.

Ward Gasoline Co., Box 507, Sayre, Okla.
Pres., J. C. Ward
V. P., W. F. Seeger
Secy. and Treas., Ewell Nalle
S. Mgr. and P. A., W. F. Seeger
Plant in Texas
Capacity 5,000.

Warner-Caldwell Oil Co., Second National Bank Bldg., Titusville, Pa.
Pres., A. N. Warner
V. P., J. H. Caldwell, Jr.
Secy. and Treas., F. B. August
Gen. Supt., P. C. Hatfield
S. Mgr., P. C. Hatfield
G. Mgr. and P. A., A. N. Warner
Plants in Oklahoma and Nowata
Capacity 1,700.

Washington Development Co., 715 Central Bldg., Wichita, Kans.
Pres., L. W. Cary
V. P., E. C. Joullian
Secy. and Treas., F. A. R. McFadden
Gen. Supt., S. L. Bell
S. Mgr., C. S. Worley
Ch. Engr., H. W. Shaffer
Plant in Kansas.
Capacity 10,000.

L. H. Wentz (Oil Division), Ponca City, Okla.
Gen. Supt., O. H. Schoenwald
P. A., S. C. Harkness
Plants in Oklahoma
Capacity 6,500.

West Coast Refining Co., 1320 Pacific Finance Bldg., Los Angeles, Calif.
Pres., A. H. Bradford
V. P., M. D. Schatzman
Secy.-Treas., W. B. Ogden
Gen. Supt., W. M. Gradford
Plants in California.
Capacity 50,000.

Western Gasoline Co., Exchange National Bank Bldg., Tulsa, Okla.
Pres., W. K. Warren
V. P., J. A. LaFortune
Secy., H. E. Felt
Treas., A. J. Murphy
Gen. Supt. and P. A., Don Smith
Plant in Oklahoma
Capacity 4,500.

Western Natural Gasoline Corp., Commercial Exchange Bldg., Los Angeles, Calif.
Pres., R. R. Rakestraw
V. P., A. W. Taylor
Secy. and Treas., L. J. Hart
P. A., L. J. Hart
Plant in California.
Capacity 7,500.

Western States Gasoline Corp., 609 South Grand Ave., Los Angeles, Calif.
Pres., C. R. Gallagher
V. P., E. McGowan
Secy., G. C. O'Connell
Gen. Supt., W. N. Roper
Plant in California
Capacity 160,000.

Westoak Gasoline Co., Box 507, Sayre, Okla.
Pres., T. J. Butler
V. P., W. F. Seeger
Secy. and Treas., Ewell Nalle
Gen. Supt. and P. A., W. F. Seeger
Plant in Oklahoma
Capacity 10,000.

Wilcox Oil & Gas Co. (H. F.), 310 West Sixth St., Tulsa, Okla.
Pres., Homer F. Wilcox
V. P. and Gen. Mgr., G. A. Dye
V. P. and Gen. Supt., F. H. Dunn
V. P. and Treas., M. P. Appleby
Secy., L. J. Yarbrough
S. Mgr., H. E. Bangert
P. A., H. B. Ward
Ch. Engr., W. R. Bingham
Plants in Oklahoma and Texas
Capacity 5,700.

Wilshire Oil Co., Inc., 2455 East Twenty-seventh St., Los Angeles, Calif.
Pres., Alfred P. Machris
Gen. Supt., W. D. Smith
S. Mgr., M. M. Fletcher
P. A., A. Pateracki
Ch. Chem., T. B. Gates
Plant in California
Capacity 110,000.

Wirt Franklin Petroleum Corp., Ardmore, Okla.
Pres., Wirt Franklin
V. P., F. M. Porter, Walter Gant and Chester Franklin
Secy. and Treas., E. Galt
Gen. Supt., R. R. Owens
S. Mgr., Chester Franklin
P. A., R. R. Owens
Ch. Chem., D. E. Logan
Ch. Engr., R. R. Owens
Plants in Oklahoma
Capacity 50,000.

Wirt Gasoline Co., 91 Main St., Bradford, Pa.
Pres., Nathan Nichols
Secy., Henry Graff
Treas., Nathan Nichols
Gen. Supt., Henry Graff
Ch. Engr., L. L. Hardman
Plant in New York.

Wiser Oil Co. (The), Trico Bldg., Sistersville, Pa.
Pres., E. A. Durham
V. P., A. C. Jackson, M. B. Hutchison and W. L. Sutton
Secy. and Treas., L. E. Gregg
Mgr. West. Div., H. G. Ellis
S. Mgr., H. G. Ellis
Plant in Oklahoma
Capacity 2,000.

Wolverine Petroleum Corp., Shell Bldg., St. Louis, Mo.
Pres., R. G. A. van der Woude
V. P., J. C. van Eck and T. F. Lydon
Secy. and Treas., P. R. Chenoweth
Gen. Supt., S. S. Smith
S. Mgr., L. van Eeghen
P. A., C. B. Singleton
Plants in Oklahoma
Capacity 18,000.

Wright Estates (J. H.), Sapulpa, Okla.
Executrix, Rosa B. Wright
Gen. Supt., A. B. Nigh
S. Mgr., M. L. Murphy
Ch. Chem. and Ch. Engr., A. B. Nigh
Plant in Oklahoma
Capacity 4,500.

Superintendents of Gasoline Plants and Their Addresses

Airolene Gasoline Corp.
Jess Patterson, Box 772, Shamrock, Tex.

Alum Rock Gas Co.
Roy Klinger, Knox, Pa.

Amerada Petroleum Corp.
J. W. Kearney, Box 686, Healdton, Okla.
G. D. Crandall, Box 1028, Okmulgee, Okla.
V. W. Roberts, Drawer C, Fry, Tex.
E. G. Lyons, Box 37, Harjo, Okla.
T. N. Journeycake, R.F.D. 7, Oklahoma City, Okla.

American Oil Development Co.
G. H. Hays, Box 125, Robinson, Ill.
S. E. Hoover, Middlebourne, W. Va.
M. T. Hooper, St. Marys, W. Va.
G. G. Morgan, Meadeville, W. Va.
J. H. Petty, Fly, Monroe County, Ohio
H. G. Bradfield, R.F.D. 2, New Matamoras, Ohio

Arab Gasoline Corp.
R. S. Railey, Eastland, Tex.

Arkansas Natural Companies
S. Cunningham, Drawer "D", El Dorado, Ark.
E. P. Farmer, Box 272, Monroe, La.
L. A. Clements, Box 668, Homer, La.
T. F. Gordon, Box 1734, Shreveport, La.
C. Witschey, care Ark. Fuel Oil Co., Robinson, Ill.

Barnsdall Oil Co.
J. O. Green, Box 518, Earlsboro, Okla.
R. W. Shannon, Box 856, Beggs, Okla.
G. R. Nicholas, Box 228, Osage, Okla.
E. E. Troyer, Box 224, Avant, Okla.
C. C. Voris, Box 2039, Tulsa, Okla.
F. C. Goughler, R. 4, Box 242, Bartlesville, Okla.
A. H. Sayler, R. 2, Box 173, Oxford, Kans.
Fred Tunstall, R. 4, Box 79, Okmulgee, Okla.

Barnsdall Oil Co. of California
R. L. Fortune, P. O. Box 88, Golet, Calif.

Bartlett Gasoline Co.
E. W. Melling, Box 467, Butler, Okla.

Big Lake Oil Co.
C. C. Hickle, Texon, Tex.

Bolsa Chica Oil Corp.
Jere F. Calef, P. O. Box 1025, Ventura, Calif.

Bruner & Co. (A.)
Wm. Avra, R.R. 1, Lawrenceville, Ill.

Canadian River Gas Co.
W. A. Skinner, Gas Bldg., Amarillo, Tex.

Carbide & Carbon Chemicals Corp.
C. N. Schaffner, Clendenin, W. Va.
C. M. Stuter, Hastings, W. Va.
C. E. Center, Diamond, W. Va.

Clinger Oil & Gas Co.
C. R. Boyd, Truemans, Forest Co., Pa.
J. E. Peterson, F.R.D. 3, Tidioute, Pa.

Cockran & Co. (John G.)
J. C. Curtin, Barnes, Pa.

Coffin, (C. J.)
C. W. Miller, Route 1, Karnes City, Pa.
George Work, Route 2, Chicora, Pa.

Coltexo Corp.
J. P. Cox, Lefors, Tex.
H. E. Means, Lefors, Tex.
G. H. Stevens, Lefors, Tex.
W. R. Wise, Lefors, Tex.

Columbian Gasoline Corp.
R. A. Boyd, Fairbanks, La.
J. S. Dunn, Swartz, La.
J. F. Morris, Perryville, La.
B. F. Spigenor, Fairbanks, La.
R. E. Biggs, R.F.D. 1, Rayville, La.
H. G. Stevenson, Shamrock, Tex.

Columbian Gasoline Corp.
R. A. Boyd, Fairbanks, La.
R. E. Biggs, R.F.D. 1, Rayville, La.
J. S. Dunn, Swartz, La.
J. F. Morris, Perryville, La.
B. F. Spigenor, Fairbanks, La.
J. P. Savell, Fairbanks, La.
H. F. Stevenson, Shamrock, Tex.

Continental Oil Co.
A. L. Collins, Burkburnett, Tex.
H. M. McCabe, Fort Collins, Colo.
R. A. Carter, Columbine, Wyo.

Crosbie and Moran, Inc.
D. B. Young, P. O. Box 247, Marshall, Okla.
R. F. Brown, P. O. Box 715, Earlsboro, Okla.
L. D. Hare, P. O. Box 1727, Konawa, Okla.
R. G. Dwen, Jr., P. O. Box 84, Pearson, Okla.

Daugherty & Co. (C. R.)
H. C. Conley, Oakdale, R.D. 2, Pa.

Deep Rock Oil Corp.
C. L. Moss (supervises all plants)

Del Rey Oil & Refining Co., Ltd.
F. A. E. Lowell, 21 Avenue 43, Venice, Calif.

Dempseytown Gas Co.
Roy Klinger, Knox, Pa.

Dinsmoor & Co.
D. H. Israel, St. Marys, W. Va.

Eason Oil Co.
T. E. Sisk, Box 517, Covington, Okla.
H. S. Wilson, Crescent, Okla.

Empire Gas & Fuel Co., Ltd.
Guy Harder, Andover, N. Y.

Empire Oil & Refining Co.
W. H. Yingling, Arkansas City, Kans.
J. F. Hodge, Tallant, Okla.
R. Johnston, Box 2093, Wichita, Kans.
E. Williams, R.F.D. Teter, Hamilton, Kans.
L. A. Webster, Madison, Kans.
C. E. Aydelotte, Box 188, Thrall, Kans.
Lloyd Toland, Box 476, Madison, Kans.
E. R. Estus, Box 395, Seminole, Okla.
P. J. Phillips, Route 1, Box 600, Seminole, Okla.
C. F. Fischer, Box 1205, Seminole, Okla.
J. L. Sperry, Box 1638, Konawa, Okla.
J. A. Dowler, Box 1638, Konawa, Okla.
W. H. Tillock, Box 789, Asher, Okla.
V. F. Hobart, Box 1686, Pampa, Tex.

Equitable Gas Co.
G. M. Myers, Rogersville, Pa.
E. O. Bouch, R.F.D. 1, Clarksville, Pa.

Field Gasoline Corp. (O. C.)
A. L. Henrickson, Box 211, Huntington Beach, Calif.
I. H. Westmoreland, Box 832, Maricopa, Calif.

Fleming (Joseph E.)
B. H. Crippen, Grand Valley, Warren County, Pa.

General Petroleum Co.
J. W. Scott, Los Angeles, Calif.
J. L. McMahon, Santa Fe Springs, Calif.
H. W. Havis, Ventura, Calif.
H. S. Donovan, Lebec, Calif.

Getty Gasoline Co., George F.
Ben A. Koehler, Box 715, Santa Fe Springs, Calif.

Gilmore Gasoline Plant No. 1
W. Shellshear, 2140 Walnut Ave., Long Beach, Calif.

Gilmore-Dabney Gasoline Corp.
W. Shellshear, 2140 Walnut Ave., Long Beach, Calif.

Gould & Co., Nancy E.
Floyd B. Gould, R. 6, Butler, Pa.

Gulf Production Co.
J. H. Eubank, P. O. Box 88, Breckenridge, Tex.

Hanlon Gasoline Co.
J. P. Gilchrist, P. O. Box 268, Breckenridge, Tex.

Hapgood (R. T.)
Wiley Price, Cedar Grove, W. Va.
G. Warren McCamey, Blue Creek, W. Va.

Harland Oil Co.
C. O. Duve, Wolco, Okla.
D. C. Bohnsack, Wolco, Okla.

Henderson Co. (The)
C. C. Cherry, El Dorado, Ark.
C. A. Seiple, Sanford, Tex.

Honolulu Oil Corp., Ltd.
H. S. Stark, Bin H, Taft, Calif.

Humble Oil & Refining Co.
W. B. Calhoun, Overton, Tex.
Joe Miller, Neches, Tex.
G. L. McCormick, Bellville, Tex.
R. W. Way, Rising Star, Tex.

Indian Territory Illuminating Oil Co.
T. A. Stevens, Oklahoma City, Okla.
James Porter, Oklahoma City, Okla.
Paul Shunkey, Oklahoma City, Okla.
C. D. McReynolds, Oklahoma City, Okla.
H. P. Wingo, Oklahoma City, Okla.

Kansas Gasoline Co.
J. L. Looney, Box 1007, Winfield, Kans.

Kansas Gas & Gasoline Co. (The)
Roy Gearhart, McPherson, Kans.
E. S. Newton, McPherson, Kans.
H. B. Matthews, Medicine Lodge, Kans.

Kentucky Pipe Line Co. (Kentucky)
H. D. Robb, Winchester, Ky.

Lebow (C. H.)
Wm. Simpson, Drumright, Okla.

Lone Star Gas Co.
J. F. Mayo, Jr., Gordon, Tex.
Felix L. McCurdy, R. 1, Cisco, Tex.
C. R. Rogers, Hollis, Okla.
H. C. Wells, Petrolia, Tex.
H. R. Hinman, Box 882, Ranger, Tex.
J. E. Johnson, Box 567, Gainesville, Tex.
Cecil Louks, Box 488, Ranger, Tex.
J. L. Hamilton, Brazos, Tex.

Lone Star Gasoline Co.
Harry Wheeldon, P. O. Box 788, Ranger, Tex.
J. A. Bates, P. O. Drawer 00, Breckenridge, Tex.

Los Nietos Producing & Refining Co., Ltd., 714 W. Tenth St., Los Angeles, Calif.
George Thompson, Box 1039, Coalinga, Calif.

Louisiana Oil Refining Corp.
W. W. McElroy, Cotton Valley, La.

Magnolia Petroleum Co.
D. E. Farris, El Dorado, Ark.
Guy E. Cox, St. Louis, Okla.
O. B. Zeek, Shamrock, Okla.
C. V. Edwards, Healdton, Okla.
W. B. January, Electra, Tex.
V. L. Dickinson, Pampa, Tex.
J. A. Upton, Olden, Tex.

Mahutska Oil Co.
S. H. Correll, R.F.D., Robinson, Ill.
Fred Boyd, R.F.D., Oblong, Ill.
E. C. Higgins, R.F.D., Flat Rock, Ill.

Mars Co. (The)
W. E. Huggler, Van, Pa.
W. C. McDonald, Hampton St., Oil City, Pa.
J. O. Clark, Lewis Run, Pa.
E. L. Betz, Endeavor, Pa.
N. C. Gifford, Clarion, Pa.

Masoneal Gasoline Co.
O. Reeves, Box 103, Osage, Okla.

Mid-Continent Petroleum Corp.
F. C. Bach, Box 896, Shamrock, Okla.
Ed Burgess, Box 97, Leonard, Okla.
J. A. Fuller, Route 1, Garber, Okla.
R. H. Corbin, Box 387, Morris, Okla.
J. A. Blakemore, Box 788, Cromwell, Okla.
C. C. Wolford, Box 11, Stroud, Okla.

Mid-Kansas Oil & Gas Co.
W. E. Smith, Box 277, Eliasville, Tex.
G. M. Cook, Drawer B, Bristow, Okla.

Midland Gasoline Co. (The)
P. L. McLaren, Box 67, Coleman, Tex.

Midwest Refining Co., Midwest, Wyo.
A. C. Andrews, Midwest, Wyo.

Moon Gasoline Co.
Chas. Bender, Muskogee, Okla.
P. D. Bragg, Bixby, Okla.

National Supply Co. of Texas (The)
E. C. Smith, Shamrock, Tex.

Neal Gasoline Co.
L. W. Blair, Box 186, Osage, Okla.
F. Hamilton, Copan, Okla.

New York Oil Co.
L. Glenn Kelly, Box 6, Riverton, Wyo.

Noland and Lamberton
W. E. Russell, R. 4, Oblong, Ill.

Ohio Oil Co. (The)
E. B. Charlton, Shreveport, La.
J. Denton, Bridgeport, Ill.
J. R. Thorpe, Robinson, Ill.
Burr Farr, Casper, Wyo.
G. Sowards, Casper, Wyo.
H. T. Henton, Casper, Wyo.
N. Trogden, Casper, Wyo.

Ohio Producing & Refining Co. (The)
C. F. Turner, care East Ohio Gas Co., East 62nd St., Cleveland, Ohio.

Oil & Gas Co., The
W. O. Wells, Harrisville, W. Va.

Oil State Gasoline Co.
E. E. Stepp, Jenks, Okla.
C. W. Stepp, Yale, Okla.

Pacific American Gasoline Co. of Texas
C. B. Rose, Box 278, Borger, Tex.

Phillips Petroleum Co.
J. M. Williams, Box 367, Webb City, Okla.
M. J. Carr, Box 180, Route No. 4, Bartlesville, Okla.
L. V. Miller, Box 88, Pershing, Okla.
R. L. Ford, Box 1092, Seminole, Okla.
R. K. McConnell, Box 989, Oklahoma City, Okla.
E. E. Traywick, Box 967, Wetumka, Okla.
Ralph Stewart, Box 37, Bryant, Okla.
E. E. McCollum, Box 606, Wewoka, Okla.
J. A. Johannes, Box 57, Cromwell, Okla.
W. W. Ford, Box 398, Madison, Kans.
J. H. Gulley, Box 1058, Homer, La.
A. W. Paris, Box 666, Crane, Tex.
Carl Fisher, Box 666, Crane, Tex.
J. B. Herrington, Box 9, Judkins, Tex.
A. C. Brock, Box 757, Hobbs, N. Mex.
Rex McRoy, Box 358, Whittenburg, Tex.
L. E. Church, Box 358, Whittenburg, Tex.
O. J. Brazil, Box 358, Whittenburg, Tex.
Walter Beets, Box 358, Whittenburg, Tex.
H. F. Magerkurth, Box 358, Whittenburg, Tex.
W. C. Boatwright, Box 358, Whittenburg, Tex.
Homer Gibson, Box 358, Whittenburg, Tex.
H. M. Rapp, Box 358, Whittenburg, Tex.
W. R. Barrett, Route No. 2, P. P. Co., Pampa, Tex.
C. A. Thoren, Route No. 2, P. P. Co., Pampa, Tex.
Ben Williams, Route No. 2, P. P. Co., Pampa, Tex.
B. V. Wallis, Route No. 2, P. P. Co., Pampa, Tex.
E. R. Martin, Route No. 2, P. P. Co., Pampa, Tex.
L. P. Clark, Route No. 2, P. P. Co., Pampa, Tex.
P. J. Hubbell, Box KK, P. P. Co., Breckenridge, Tex.
F. B. Joyce, Box 507, Pioneer, Tex.
J. F. Steed, P. P. Co., Frankell, Tex.
J. F. Waters, P. P. Co., Ibex, Tex.
J. P. Weatherall, South Bend, Tex.

Philmore Gasoline Corp.
J. F. Barton, Box 128, Bryson, Tex.

Pittsburgh & West Virginia Gas Co.
Archie Stutler, Hundred, W. Va.

Powers (M. F.)
L. E. Flanagan, Depew, Okla.
R. B. Paris, Hazel, Okla.

Powers and Quinlan
Felix Quinlan, Beggs, Okla.

President Oil Co.
J. S. Beals, Emlenton, Pa.
S. Smith, Venus, Pa.

Preston Oil Co. (The)
F. A. Laumer, Medina, Ohio
L. D. Myers, Homer, Ohio
H. R. Hyatt, Pavonia, Ohio
H. T. Holland, Sugar Grove, Ohio
P. A. Ross, R.F.D. 2, Summerford, Ohio
E. Scott, R.F.D. 1, Rome Ohio

Producers & Refiners Corp.
L. M. Johnston, Parco, Wyo.

Pure Oil Co. (The)
W. L. McCarty, Box 1277, Drumright, Okla.
J. W. Crump, Box 667, Seminole, Okla.
J. H. Prater, Box 224, Van, Tex.
W. R. Waggoner, Box 87, Daws, W. Va.

Rainbow Gasoline Corp.
C. A. McIntosh, El Dorado, Ark.

Red Brush Oil Co.
C. E. Gisin, Tidioute, Pa.

Reserve Petroleum Co.
C. W. Warwick, Box 9, Louann, Ark.
Tom Evans, Box 338, Barnsdall, Okla.
E. L. Clover, Box 172, Haynesville, La.

Roeser and Pendleton, Inc.
C. A. Davis, Albany, Tex.

St. Helens Petroleum Co., Ltd. (The)
C. Z. Webb, Box D, Pico, Calif.
Geo. C. Sproule, Box 248, Montebello, Calif.
J. A. Stotts, Box M, Taft, Calif.

Shamrock Oil & Gas Co.
E. C. Will, P. O. Box 1076, Pampa, Tex.

Shell Petroleum Corp.
J. L. May, Hobbs, N. Mex.
E. H. Ross, Drumright, Okla.
C. E. Haines, Pampa, Tex.
L. Lamar, Oxford, Kans.
C. E. Smith, Marshall, Okla.

F. Hegwer, Maud, Okla.
W. H. Harding, Box 127, Capitol Hill Sta., Oklahoma City, Okla.

Signal Hill Gasoline Co.
C. E. Ward, Box "K", Taft, Calif.
M. D. Martin, Box E-1, Ventura, Calif.
C. E. Gotterba, Bin "W", Long Beach, Calif.

Signal Oil & Gas Co., and Signal Gasoline Co.
J. G. Hall, Long Beach, Calif.
A. Kittleberger, Long Beach, Calif.
L. A. Boyd, Big Lake, Tex.

Silurian Oil Co.
J. B. Crisman, Tulsa, Okla.
E. O. Bishop, Avant, Okla.

Simms Oil Co.
H. A. Rike, Norphlet, Ark.

Sinclair Oil & Gas Co.
Lewis Snyder, P. O. Box 68, Cleveland, Okla.
G. H. Youker, R.F.D. 1, Drumright, Okla.
W. D. Dolan, Box 578, Shamrock, Okla.
B. C. Sharrett, Box 368, Covington, Okla.
W. L. Newman, Gen. Del., Arondale, Okla.
L. M. Kelsey, Box 6, Shidler, Okla.
L. F. Kneeland, Box 368, Cromwell, Okla.
L. N. Yates, Box E, Kenbro, Kans.
F. B. Pearce, Box 865, Seminole, Okla.
K. R. Elliott, Box 787, Seminole, Okla.
C. O'Donnell, Box 103, Pearson, Okla.
L. C. Van Cleave, Box 4188, Oklahoma City, Okla.
N. F. B. Pearce, Box 865, Seminole, Okla.
V. H. Akers, Box 297, Sasakwa, Okla.

Skelly Oil Co.
E. K. Anderson, Box 157, Lyman, Okla.
L. Barrett, Box 536, Seminole, Okla.
A. H. Bazell, Box 952, Burkburnett, Tex.
J. E. Carlson, Box 127, Skellytown, Tex.
E. A. Emmons, Box 67, Maramec, Okla.
C. A. Holmes, Box 336, Whittenburg, Tex.
M. S. Pike, Box 168, Slick, Okla.
C. N. Smith, Box 413, Wynona, Okla.

Sloan & Zook Co. (The)
P. H. Zook, Kane, Pa.

Snowden & McSweeney Co.
A. E. Baldwin, Bridgeport, Ill.

South Plains Pipe Line Co.
J. S. LeGate, Box 1443, Amarillo, Tex.

Southern Oil Co.
R. D. McMurry, R.F.D. 7, Butler, Pa.
C. R. Jeannerat, Third St., Clarion, Pa.
R. W. James, Pleasantville, Pa.
Roy Litzenberg, Volant, Pa.
C. A. Cousten, Middlebourne, W. Va.
Arthur Cousten, Macfarlan, W. V.
V. P. Stover, Sycamore Valley, Ohio
J. W. Bookman, Schley, Ohio

Southwest Production Co.
A. C. Wright, Box 68, Bristow, Okla.

Stanolind Oil & Gas Co.
D. C. Harman, Box 591, Tulsa, Okla.

Stranahan & Chevron†
J. F. Brown, 408 W. Main St., Oblong, Ill.

Success Oil Corp.
A. Porter, Sr., 632 Superior St., Titusville, Pa.

Sunray Oil Co.
V. C. Langford, Sunray, Tex.

Swiss Oil Corp.
Forest Clarkson, Fixer, Ky.

Texas Company (The)
M. J. Adams (North Texas Division), Wichita Falls, Tex.
T. F. O'Brien (West Texas and New Mexico Division), Cisco, Tex.
J. L. Shea (Louisiana and Arkansas Division), Shreveport, La.
C. C. Kelly (Oklahoma and Kansas Division), Tulsa, Okla.

Texoma Natural Gas Co.
R. T. Powers, Fritch, Tex.

Texas Pacific Coal & Oil Co.
Jack White, Thurber, Tex.
C. Bronsteadt, Caddo, Tex.

Tidal Refining Co.
R. S. Stanfield, Drumright, Okla.
W. L. Tinsley, Glenpool, Okla.

Tuel & Thoenen
Manford Tuel, Sistersville, W. Va.

Union Gasoline Co.
J. D. Copeland, Caney, Kans.

Union Oil Co. of California
Lafe Todd (Northern Division), San Luis Obispo, Calif.
J. C. Rector (Southern Division), Santa Fe Springs, Calif.

United Gas Public Service Co.
H. S. Ridings, (Cotton Valley), Cotton Valley, La.
L. O. Lawless, (Latex), Loraine, La.
W. H. McCalip (Sugar Creek), Athens, La.
M. W. McAfee, Jr., Refugio, Tex.
J. S. Gilbert (Alto), Archibald, La.

Victor Gasoline Co.
L. J. Rush, Bristow, Okla.
J. J. Powers, Seminole, Okla.
T. N. Rutherford, Seminole, Okla.
A. L. Brunner, Seminole, Okla.

Wahl (A. R.)
F. B. Wahl, Evans City, Pa.

Ward Gasoline Co.
Herman Cornett, Breckenridge, Tex.

Warner-Caldwell Oil Co.
P. C. Hatfield, Nowata, Okla.

Washington Development Co.
H. W. Shaffer, Wellington, Kans.

Western Natural Gasoline Corp.
William Walker, Signal Hill, Calif.

Wilcox Oil & Gas Co. (H. F.)
J. A. Berry, Box 398, Pampa, Tex.
J. B. Hill, Box 368, Bristow, Okla.

Wilshire Oil Co., Inc.
T. B. Gates, 2455 East 27th St., Los Angeles, Calif.
Mr. Seppi, 2455 East 27th St., Los Angeles, Calif.
W. D. Smith, 2455 East 27th St., Los Angeles, Calif.

Wirt Franklin Petroleum Corp.
Chas. Chaney, care Wirt Franklin Pet. Corp., Oklahoma City, Okla.
J. F. Looker, care Cromwell-Franklin Oil Co., Oklahoma City, Okla.

Wirt Gasoline Co.
Lyle L. Hardman.

Wiser Oil Co. (The)
H. J. Brooks, Alluwe, Okla.

Wolverine Petroleum Corp.
S. U. Young, Avant, Okla.
S. U. Young, Bartlesville, Okla.
R. R. Dollins, Wilson, Okla.

Location of Natural Gasoline Plants Arranged by States

Abbreviations: Absorption, absp.; compression, comp.; absorption and compression, A-C. *Shut down.

ARKANSAS

Company and plant address—	Field location—	Type of plant	Daily cap'y (gals.)
Arkansas Natural Gas Corp., El Dorado	Sec. 31-17s-15w	C-A	10,000
Gulf Refining Co. of Louisiana, El Dorado	El Dorado south field	Absp.	4,000
Henderson Co., El Dorado	El Dorado	C-A	11,000
Imperial Oil & Gas Products Co., Smackover	Smackover	Comp.	8,000
Lisbon Gasoline Co., Shreveport	Union County	Absp.	*15,000
Magnolia Petroleum Co., El Dorado	Sec. 8-15-16, Union County	Absp.	6,800
Rainbow Gasoline Corp., Tulsa, Okla.	Sec. 28-17s-14	C-A	7,000
Reserve Petroleum Co., Box 9, Louann	Sec. 30-15-16	Absp.	6,000
Simms Oil Co., Norphlet	Sec. 29-15s-15w	Char.	5,000
Simms Oil Co., Norphlet	Sec. 9-16s-15w	Char.	5,000
Standard Oil Co. of Louisiana	El Dorado, 3 mi.	C-A	19,234
Standard Oil Co. of Louisiana	Smackover, 3 mi.	Absp.	916

CALIFORNIA

American Natural Gasoline Corp., Santa Maria	Santa Maria Field	Absp.	*7,500
Bankline Oil Co., Willow St., Signal Hill	Farm Lot 64, Signal Hill	Absp.	22,500
Barnsdall Oil Co. of California, Goleta	Sec. 14-14n-29w	Absp.	65,000
Beiridge Oil Co., Belridge	Lost Hills Field	Absp.	5,000
Beiridge Oil Co., Belridge	Elk Hills	Absp.	7,000
Beiridge Oil Co., Belridge	Lost Hills Field	Absp.	5,000
Beiridge Oil Co., Belridge	Lost Hills Field	Absp.	50,000
Bolsa Chica Oil Corp., Ventura	Ventura	Absp.	15,000
Bolsa Chica Oil Corp., Ventura	Ventura	Absp.	*10,000
Brea Canon Oil Co.	Coyote Hills	C-A	14,000
Calumet Oil Co., Fillmore	Sec. 3-3-19, Ventura County	Comp.	1,000
Coline Gasoline Corp., 319 Kerckhoff Bldg., 560 So. Main St., Los Angeles	Sec. 16-4s-14w	Absp.	10,000
Coline Gasoline Corp., 319 Kerckhoff Bldg., 560 So. Main St., Los Angeles	Sec. 16-3n-24w	Absp.	6,000
Cowan Oil & Refining Co., 6th and Spring St., Los Angeles	Rosecrans	Absp.	10,000
Del Rey Oil & Refining Co., Ltd., 422 Washington Bldg., Los Angeles	500 ft. E and 30 ft. S from NE cor., Lot 14, Blk. 13, Del Rey Beach	Absp.	*60,000
Edington Gasoline & Refining Co., Inglewood	Aerick & Eastwood Sts., Inglewood	Absp.	6,000
Export Refining Co., Torrance	Torrance Field	.....	*20,000
Field, O. C., Gasoline Corp., 609 Board of Trade Bldg., Los Angeles	Huntington Beach	Absp.	30,000
Field, O. C., Gasoline Corp., 609 Board of Trade Bldg., Los Angeles	Maricopa	Absp.	10,000
Fullerton Oil Co., R.F.D. 2, Box 72, Fullerton	Sec. 2-3-10w, Orange County	C-A	6,000
General Petroleum Corp. of California, Higgins Bldg., Los Angeles	Santa Fe Springs	Absp.	200,000
General Petroleum Corp. of California, Higgins Bldg., Los Angeles	Ventura	Absp.	40,000
General Petroleum Corp. of California, Higgins Bldg., Los Angeles	Athens	Absp.	40,000
General Petroleum Corp. of California	Brea Canyon	C-A	*10,000
Getty, Geo. F., Gasoline Co., 1060 Subway Terminal Bldg., Los Angeles	Seal Beach	Absp.	10,000
Gilmore Gasoline Plant No. 1, 2423 E. 28th St., Los Angeles	Sec. 30-4s-12w	Absp.	30,000
Gilmore-Dabney, 2423 E 28th St., Los Angeles	Sec. 29-4s-12w	Absp.	30,000
Gilmore-Dabney, 2423 E 28th St., Los Angeles	Sec. 24-4s-13w	Absp.	30,000
Gilmore-Dabney, 2423 E 28th St., Los Angeles	Sec. 24-13w-4s	Absp.	30,000
Highway Gasoline Co., Ventura	Ventura Field	Absp.	20,000
Highway Gasoline Co., Ventura	Ventura Field	Absp.	*3,000
Gilmore-Dabney, 2423 E 28th St., Los Angeles	Sec. 24-4s-13w	Absp.	30,000
Holly Oil Co., Ventura			
Honolulu Oil Corp., Ltd., 215 Market St., San Francisco	Sec. 8-32s-24e, Kern County	C-A	30,000
Honolulu Oil Corp., Ltd., 215 Market St., San Francisco	.....	C-A	30,000
Hokom Oil & Gasoline Co. (J), Lawndale	Lawndale	Absp.	5,000
Lomita Gasoline Co., Box 669, Long Beach	Signal Hill	Absp.	40,000
Los Nietos Producing & Refining Co., Ltd.	Sec. 2-22s-17e	Absp.	100,000
Mohawk Petroleum Co., 20 Ave. 44, Venice	45th and Speedway, Venice	Absp.	10,000
North American Oil Consolidated, Room 915, Balfour Bldg., San Francisco	Sec. 28-31s-23e, M.D.B.&M., Kern County	Absp.	3,000
Norwalk Co., The, Santa Fe Springs	SE SW, Sec. 6, T. 3s, R. 11w, S.B.B.&M.	Absp.	120,000
Norwalk Co., The, Fillmore	McNabb estate	Absp.	50,000
Norwalk Co., The, Saticoy	Saticoy	Absp.	50,000
Norwalk Co., The, Bin WW, Taft	Sec. 30, T. 31s, R. 24e, M.D.B.&M.	Absp.	4,000
Norwalk Co., The, Bin WW, Taft	SE, Sec. 36, T. 12n, R. 24e, S.B.B.&M.	Absp.	8,000
Ohio Oil Co., Venice	Los Angeles County	Absp.	20,000
Pacific Western Oil Co., Drawer 86, Goleta	Goleta lease, Elwood	Absp.	25,000
Pacific Western Oil Co., Drawer Z, Ventura	Willett lease, Ventura Ave.	Absp.	35,000
Pacific Western Oil Co., 714 W. 10th St., Los Angeles	Rubel lease, Baldwin Hills	Absp.	7,500
Pan California Gasoline Co., 719 Security Bldg., Los Angeles	Venice	Absp.	15,000
Pan California Oil Corp., 719 Security Bldg., Los Angeles	Inglewood	Absp.	5,000
Rancho La Brea Oil Co., Salt Lake	Salt Lake Field	Absp.	5,000
Reservoir Hill Gasoline Co., 417 So. Hill St., Los Angeles	Lot 24, Alamitos, Long Beach	Absp.	25,000
Rice Ranch Oil Co., Orcutt	Santa Maria Field	Absp.	1,000
Rio Grande Oil Co., 417 S. Hill St., Los Angeles	Santa Fe Springs	Absp.	30,000
Ryan & Hackett Co., Inc., 511 Associated Realty Bldg., Los Angeles	Signal Hill	Absp.	3,000
St. Helens Petroleum Co., Ltd., Box 248, Montebello	Sec. 2-2-12, Los Angeles	Absp.	750
St. Helens Petroleum Co., Ltd., Box D, Taft	Sec. 16-32-24, Kern County	Absp.	2,500
Shell Oil Co. of California, 200 Bush St., San Francisco	Graside lease, Coyote Hills	Absp.	40,000
Shell Oil Co. of California	Sec. 27, Coalinga Field	Absp.	*4,000
Shell Oil Co. of California	Reyes, Dominguez Field	Absp.	32,000
Shell Oil Co. of California	Rindge, Inglewood Field	Absp.	10,000
Shell Oil Co. of California	Coseboom, Long Beach	Absp.	220,000
Shell Oil Co. of California	Careaga, Santa Maria Field	Absp.	4,000
Shell Oil Co. of California	Gosnell, Ventura Field	Absp.	130,000
Signal Oil & Gas Co., 811 W. 7th St., Los Angeles	Signal Hill	Absp	30,000
Signal Oil & Gas Co., 811 W. 7th St., Los Angeles	Signal Hill	Absp.	20,000
Signal Oil & Gas Co., 811 W. 7th St., Los Angeles	Signal Hill	Absp.	10,000
Signal Oil & Gas Co., 811 W. 7th St., Los Angeles	Signal Hill	Absp.	10,000
Signal Hill Gasoline Co., 820 Richfield Bldg., 555 S. Flower St., Los Angeles	Blk. 64, American Colony tract, Signal Hill Field	Absp.	35,000
Signal Hill Gasoline Co.	Knob of Naples, City of Long Beach	Absp.	*30,000
Signal Hill Gasoline Co.	Tract 2,200, Los Angeles County	Absp.	*2,000
Signal Hill Gasoline Co.	Blks. F and G, Signal Hill tract	Absp.	*15,000
Signal Hill Gasoline Co.	Farm Lot 78, American Colony tract, Los Angeles County	Booster	11,000
Signal Hill Gasoline Co.	Blk. 58, American Colony tract, Los Angeles County	Absp.	35,000
Signal Hill Gasoline Co.	Sec. 3-21s-24e, Kern County	Absp.	5,000
Signal Hill Gasoline Co.	Sec. 32-12n-23w, Kern County	Absp.	*3,000
Signal Hill Gasoline Co.	Secs. 8 and 17, T. 3n, R. 24w, Kern County	Absp.	6,000
Signal Hill Gasoline Co.	Blk. 712, Wesley Park tract, Orange County	Absp.	5,000
Signal Hill Gasoline Co.	Sec. 36-12n-24w, Kern County	Absp.	*2,000
Southwest Refining Co., Long Beach	Long Beach	Absp.	*5,000
Standard Gasoline Co., 225 Bush St., San Francisco	Santa Fe Springs	Absp.	15,000
Standard Gasoline Co.	Santa Fe Springs	Absp.	45,000
Standard Gasoline Co.	Santa Fe Springs	Comp.	Booster
Standard Gasoline Co.	Santa Fe Springs	Absp.	46,000

	Field location—	Type of plant	Daily cap'y (gals.)
Standard Gasoline Co.	Montebello	Booster	(*)
Standard Gasoline Co.	Murphy Coyote	Absp.	20,000
Standard Gasoline Co.	Kraemer	Absp.	*5,500
Standard Gasoline Co.	Brea	Absp.	6,500
Standard Gasoline Co.	Huntington Beach	Absp.	*10,000
Standard Gasoline Co.	Huntington Beach	Absp.	*10,000
Standard Gasoline Co.	Huntington Beach	Absp.	20,000
Standard Gasoline Co.	Huntington Beach	Absp.	20,000
Standard Gasoline Co.	Huntington Beach	Absp.	10,000
Standard Gasoline Co.	Seal Beach	Absp.	40,000
Standard Gasoline Co.	Seal Beach	Booster	15,000
Standard Gasoline Co.	Long Beach	Booster	7,000
Standard Gasoline Co.	Long Beach	Absp.	*2,500
Standard Gasoline Co.	Long Beach	Absp.	30,000
Standard Gasoline Co.	Dominguez	Absp.	6,755
Standard Gasoline Co.	Inglewood	Absp.	*6,000
Standard Gasoline Co.	Inglewood	Absp.	7,500
Standard Gasoline Co.	Torrance	Absp.	6,000
Standard Gasoline Co.	Whittier	Absp.	375
Standard Gasoline Co.	Cypress	Absp.	4,500
Standard Gasoline Co.	Ventura	Absp.	*12,000
Standard Gasoline Co.	Ventura	Absp.	40,000
Standard Gasoline Co.	Ventura	Absp.	40,000
Standard Gasoline Co.	Ventura	Booster	
Standard Gasoline Co.	Newhall	Absp.	*1,000
Standard Gasoline Co.	Taft	Absp.	30,000
Standard Gasoline Co.	Taft	Absp.	30,000
Standard Gasoline Co.	Taft	Absp.	6,000
Standard Gasoline Co.	Taft	Absp.	6,000
Standard Gasoline Co.	Taft	Absp.	10,000
Standard Gasoline Co.	Taft	Absp.	7,500
Standard Gasoline Co.	Taft	Absp.	15,000
Standard Gasoline Co.	Taft	Booster	(*)
Standard Gasoline Co.	Taft	Absp.	*12,000
Standard Gasoline Co.	Taft	Absp.	*7,000
Standard Gasoline Co.	Wheeler Ridge	Absp.	*500
Standard Gasoline Co.	Kettleman Hills	Absp.	110,000
Standard Gasoline Co.	Kettleman Hills	Absp.	140,000
Standard Gasoline Co.	Kettleman Hills	Absp.	140,000
Standard Gasoline Co.	Kettleman Hills	Booster	
State Gasoline Corp., 900 Spring Arcade Bldg., Los Angeles	Long Beach	Absp.	15,000
State Gasoline Corp.	Long Beach	Absp.	22,500
State Gasoline Corp.	Long Beach	Absp.	*20,000
Superior Oil Co., 1100 Natl. City Bank Bldg., Los Angeles	Joughin lease, Torrance Field	Absp.	2,300
Superior Oil Co.	Kettleman Hills Field	Absp.	110,000
Texas Company, The (California)	Signal Hill	Absp.	75,000
Texas Company, The (California)	Long Beach	Absp.	15,000
Texas Company, The (California)	Santa Fe Springs	Absp.	100,000
Texas Company, The (California)	Huntington Beach	Absp.	8,000
Texas Company, The (California)	Montebello	Absp.	2,500
Texas Company, The (California)	Ventura	Comp.	12,000
Texas Company, The (California)	Ventura	Absp.	2,500
Union Oil Co. of California, 617 W. Seventn St., Los Angeles	Morse lease, Richfield Field	Absp.	20,000
Union Oil Co. of California, 617 W. Seventh St., Los Angeles	Stearns lease, Brea Field	Absp.	22,500
Union Oil Co. of California, 617 W. Seventh St., Los Angeles	Bell lease, Santa Fe Springs	Absp.	100,000
Union Oil Co. of California, 617 W. Seventh St., Los Angeles	Hellman lease, Dominguez Field	Absp.	50,000
Union Oil Co. of California, 617 W. Seventh St., Los Angeles	Rosecrans lease, Rosecrans Field	Absp.	27,000
Union Oil Co. of California, 617 W. Seventh St., Los Angeles	Santa Paula refinery, Santa Paula Field	Absp.	250
Union Oil Co. of California, 617 W. Seventh St., Los Angeles	Newlove lease, Santa Maria Field	Absp.	18,000
Universal Consolidated Oil Co., 716 Richfield Bldg., Los Angeles	Lost Hills Field	Absp.	*2,000
West Coast Refining Co., 1320 Pacific Finance Bldg., Los Angeles	Richfield	Absp.	50,000
Western Natural Gasoline Corp., Commercial Exchange Bldg., Los Angeles	Signal Hill	C-A	7,500
Western States Gasoline Corp., 609 S. Grand, Los Angeles	Sec. 2-22-17	Absp.	160,000
Wilshire Oil Co., Inc., 2455 E. 27th St., Vernon	Santa Fe Springs	Absp.	110,000

COLORADO

Continental Oil Co., Denver, Colo.	Sec. 30-68w-8n	Absp.	1,000
Continental Oil Co., Denver, Colo.	Sec. 31-68w-10n	Absp.	6,000
Mountain States Oil Corp.	Barela, S. W.	Absp.	6,000

ILLINOIS

American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Crawford County	Comp.	150
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Crawford County	Comp.	150
American Oil Development Co., 1414 Oliver Bldg., Pittsburgh, Pa.	Crawford County	Comp.	50
Arkansas Fuel Oil Co., Robinson	Sec. 3, Prairie Twp., Crawford	Comp.	2,000
Associated Producers Co., 17 Battery Place, New York, N. Y.	Crawford County	Comp.	1,300
Bell Bros., Robinson	Casey	Comp.	150
Bell Bros., Robinson	Robinson	Comp.	130
Big Four Oil & Gas Co., Pittsburgh, Pa.	Bridgeport	Comp.	300
Brenneman & MacDonell, Oblong	Sec. 6-6-13, Crawford County	Comp.	1,000
Brenneman & MacDonell, Oblong	Sec. 7-7-13, Crawford County	Comp.	250
Bruner, A., & Co., 312 Wright Bldg., Tulsa, Okla.	Lawrenceville	Comp.	*200
International Oil & Gas Co., Washington, Pa.	Crawford County	Comp.	2,000
Kennedy, W. C., Co., Bradford, Pa.	Oblong	Comp.	235
Kewanee Oil & Gas Co., Robinson	Crawford	Comp.	150
Kewanee Oil & Gas Co., Robinson	Lawrence County	Comp.	150
Liberty Oil & Gas Co., Warren, Pa.	L. F. Houghton lease 1,-009, W half SW, Sec. 33-7-13w and NW NW, Sec. 4-6-13w	Comp.	30
Henry C. Lord, Robinson	Oblong, 4 mi. SE	Comp.	*35
Mahutska Oil Co., Robinson	Sec. 17-7-13	Comp.	100
Mahutska Oil Co., Robinson	Sec. 28-6-13	Comp.	100
Mahutska Oil Co., Robinson	Sec. 10-6-13	Comp.	500
Mahutska Oil Co., Robinson	Sec. 30-7-13	Comp.	300
Mallory & Crawford, Bradford, Pa.	Oblong, ¼ mi. E	Comp.	110
Nolan & Lamberton, Box 1328, Tulsa, Okla.	Sec. 12-7-14, Crawford County	Comp.	50
Ohio Oil Co., Casey	Clark County	Comp.	124
Ohio Oil Co., Casey	Clark County	Comp.	241
Ohio Oil Co., Casey	Cumberland County	Comp.	1,150
Ohio Oil Co., Casey	Cumberland County	Comp.	437
Ohio Oil Co., Oblong	Crawford County	Comp.	405
Ohio Oil Co., Oblong	Crawford County	Comp.	242
Ohio Oil Co., Oblong	Crawford County	Comp.	310
Ohio Oil Co., Robinson	Crawford County	Comp.	243
Ohio Oil Co., Hardinville	Crawford County	Comp.	756
Ohio Oil Co., Hardinville	Crawford County	Comp.	100
Ohio Oil Co., Oblong	Crawford County	Comp.	342
Ohio Oil Co., Stoy	Crawford County	Comp.	310
Ohio Oil Co., Stoy	Crawford County	Comp.	833
Ohio Oil Co., Oblong	Crawford County	Comp.	200
Ohio Oil Co., Oblong	Crawford County	Comp.	1,130
Ohio Oil Co., Lawrenceville	Lawrence County	Comp.	*270
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,170
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	570
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	570
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,800
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,150
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	990
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,000
Ohio Oil Co., Lawrenceville	Lawrence County	Comp.	500
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,050
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,050
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	350
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	390
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,400
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,500
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,500
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	390
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,200
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	375
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,140
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	770
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	450
Rogers, R. G., Oil Co.	Oblong, 6 mi. NW	Comp.	35
Snowden & McSweeney Co., Bridgeport	E half SE, Sec. 17-3-12w	Topping	1,000
Splane, W. W., Oil City, Pa.	Robinson	Comp.	300
Stranahan & Cheuvront, 405 W. Main St., Oblong	Sec. 11-7-13	Comp.	15
Stranahan & Cheuvront, 405 W. Main St., Oblong	Sec. 22-6-13	Comp.	25
Stranahan & Cheuvront, 405 W. Main St., Oblong	Sec. 25-7-13	Comp.	30
Stranahan & Cheuvront, 405 W. Main St., Oblong	Sec. 8-7-13	Comp.	5
Union Gasoline Co., Caney	NW NW Sec. 29-29-13, Washington County	Absp.	5,000
Vacuum Gasoline Co., Lawrenceville	Lawrence County	Comp.	5,000
Vincennes Oil & Gas Co., Vincennes, Ind.	Lawrence County	Comp.	5,000
Warner-Caldwell Oil Co., Titusville, Pa.	Oblong	Comp.	200

KANSAS

Altitude Petroleum Co., Kennedy Bldg., Tulsa, Okla.	Chanute	Comp.	2,000
Barnsdall Oil Co., Route 2, Box 173, Oxford†.	W half NW, Sec. 20-33-3	Absp.	20,000
Empire Oil & Refining Co., Caney	SW, Sec. 13-35-13	Absp.	*10,000
Empire Oil & Refining Co., Arkansas City	SE, Sec. 13-34-3	Absp.	15,000
Empire Oil & Refining Co., Teterville	SW, Sec. 16-23-9	Absp.	10,000
Empire Oil & Refining Co., Madison	NW, Sec. 8-23-11	Absp.	9,000
Empire Oil & Refining Co., Thrall	SE half, Sec. 29-23-10	Comp.	7,500
Empire Oil & Refining Co., Wellington	SW, Sec. 17-32-1	Absp.	*12,000
Empire Oil & Refining Co., Madison	NE Sec. 14-22-11	C-A	4,000
Empire Oil & Refining Co., Wichita	NW, Sec. 17-28-1	Absp.	40,000
Kansas Gas & Gasoline Co., McPherson	McPherson County	Absp.	15,000
Kansas Gas & Gasoline Co., Medicine, Lodge	Barber County	Absp.	10,000
Kansas Gasoline Co., Box 1007, Winfield	Lewis farm, Sec. 24-32s-4e	Absp.	5,000
McPherson Oil & Gas Development Co., United Life Bldg., Salina	SW, Sec. 29-18-2w	Absp.	10,000
Pep Gasoline Co.	Sedan, 2 mi. E	Comp.	1,800
Phillips Petroleum Co., Phillips Bldg., Bartlesville, Okla.	NE SE, Sec. 10-23-9	Absp.	*6,000
Phillips Petroleum Co., Phillips Bldg., Bartlesville, Okla.	NE NW, Sec. 12-22-10	Comp.	6,000
Shell Petroleum Corp., Oxford	SE, Sec. 25-31s-2e	Absp.	5,000
Sinclair Oil & Refining Co., Box E, Kenbro	SW, Sec. 20-22-10e	Comp.	7,000
Texas Co., The (Delaware), O'Brien Switch	Sec. 31-30n-6e	Absp.	12,400
Texas Co., The (Delaware), Gordon	Sec. 28-26n-5e	Absp.	6,000
Washington Development Co., Wellington	Sec. 24-32s-1w	Absp.	*10,000

†Owned jointly with Continental Oil Co.

KENTUCKY

Coast Oil Co., Monticello	Monticello	Comp.	*500
Heck, W. B., & Co., Box 144, Owensboro, Ky.	Monticello	Comp.	*300
Kentucky Pipe Line Co., 311 W. Chestnut St., Louisville	Clark County	Char.	2,600
Swiss Oil Corp., Lexington	Fixer, Lee County	Comp.	2,000
Virginian Gasoline & Oil Co., Kermit, W. Va.	Martin County	Absp.	10,000
Virginian Gasoline & Oil Co., Catlettsburg	Boyd County	Absp.	24,000

LOUISIANA

Arkansas Fuel Oil Co., Homer	Sec. 24-21n-8w, Claiborne	Comp.	2,000
Arkansas Natural Gas Corp., Monroe	Sec. 36-18n-4e, Ouachita	Absp.	8,000
Columbian Gasoline Corp., R.F.D., Rayville	Sec. 10-16n-6e, Richland	Absp.	16,000
Columbian Gasoline Corp., Swartz	Sec. 5-18n-5e, Ouachita	Absp.	8,000
Columbian Gasoline Corp., Fairbanks	Sec. 37-19n-4e, Ouachita	Absp.	4,000
Columbian Gasoline Corp., Fairbanks	Sec. 2-19n-4e, Ouachita	Absp.	8,000
Columbian Gasoline Corp., R.F.D. 2, Bastrop	Sec. 37-20n-5e, Morehouse	Absp.	*3,500
Columbian Gasoline Corp., R.F.D. 2	Sec. 19-20n-5e, Morehouse	Absp.	3,000
DeSota Gasoline Co.	Mansfield	Comp.	980
Gulf Refining Co. of Louisiana, Mooringsport	Caddo	Comp.	8,000
Gulf Refining Co. of Louisiana, Mooringsport	Homer	Absp.	10,000
Herkness, J. Smylie, R.F.D. 3, Bastrop	Morehouse Parish	Absp.	1,500
Huber, J. M., Co. of Louisiana, Inc., Swartz	Sec. 5-18n-5e	Absp.	6,000
Louisiana Gas & Fuel Co.	Alto	Absp.	36,000
Louisiana Gas & Fuel Co.	Uscarco	Absp.	4,000
Louisiana Oil Refining Corp., Ardis Bldg., Shreveport	Sec. 28, Webster Parish	Absp.	20,000
Magnolia Petroleum Co., Harmon	Sec. 12-12-11, Red River	Absp.	1,500
Magnolia Petroleum Co., Gilliam	Sec. 24-21n-15w, Caddo	Absp.	1,300
Monroe-Louisiana Carbon Co., Swartz	Secs. 28 and 33-19n-5e Ouachita Parish	Char.	*2,000
Ohio Oil Co., Haynesville	Claiborne Parish	Absp.	9,400
Ohio Oil Co., Treat	Webster Parish	Absp.	10,000
Pala Oil Co., Inc., Shreveport	Sec. 15-15-20, Caddo	Comp.	325
Phillips Petroleum Co., Homer	W half SW, Sec. 19-21-7,		
Reserve Natural Gas Co. of Louisiana, Shreveport	Claiborne Parish	Comp.	10,500
	Sec. 10-17n-14w, Caddo	Absp.	10,500
Reserve Petroleum Co., Box 172, Haynesville	Haynesville	Absp.	3,500
Southwestern Gas & Electric Co., Oil City	Oil City	Comp.	450
Standard Oil Co. of Louisiana, Trees	Caddo Field, near Trees	Absp.	7,000
Standard Oil Co. of Louisiana, Homer	Claiborne Field, near Homer	Absp.	6,500
Stanolind Oil & Gas Co., Gilliam	Gilliam	Absp.	3,000
Texas Company, The (Delaware), Oil City	Sec. 3-20n-16w, Caddo	Comp.	4,000
Texas Company, The (Delaware), Oil City	Sec. 23-21n-15w, Caddo	Absp.	18,800
Texas Company, The (Delaware), Mooringsport	Sec. 19-20n-15w, Caddo	Comp.	600
Texas Company, The (Delaware), Naborton	Sec. 34-13n-12w, De Soto	Comp	4,000
Union Gas Products, Inc., 710 Ouachita Bank Bldg., Monroe	Near Swartz	C-A	6,000
United Carbon Co., Monroe	Sec. 10-16-6	Absp.	9,000
United Carbon Co., Monroe	Sec. 17-20-5	Char.	*5,000
United Carbon Co., Monroe	Sec. 13/24-21-5	Char.	*2,000
United Carbon Co., Monroe	Sec. 5-18-5	Absp.	4,000
United Gas Public Service Co., Alto	Sec. 16-16n-6e, Richland	Absp.	50,000
United Gas Public Service Co., Bastrop	Sec. 31-20n-5e, Morehouse	Absp.	*1,300
United Gas Public Service Co., Cotton Valley	Sec. 21-21n-10w, Webster	Absp.	*20,000
United Gas Public Service Co., Cotton Valley	Sec. 17-21n-10w, Webster	Absp.	50,000
United Gas Public Service Co., Pine Island	Sec. 24-21n-15w, Caddo	Absp.	*3,000
United Gas Public Service Co., Sarepta	Sec. 30-22n-10w, Webster	Absp.	*12,000
United Gas Public Service Co., Swartz	Sec. 32-19n-5e, Ouachita	Absp.	*2,500

NEW MEXICO

Phillips Petroleum Co., Artesia	SW NW, Sec. 16-18-28	Absp.	*9,000
Phillips Petroleum Co., Hobbs	N half NW, Sec. 4-19-38	Absp.	40,000
Shell Petroleum Corp., Hobbs†	SW, Sec. 19-18s-38e	Absp.	30,000

†Owned jointly with Continental Oil Co.

NEW YORK

Empire Gas & Fuel Co., Andover	Lot 55, Andover Twp.	Absp.	*400
Producers Gas Co., Olean	Genessee Twp., Allegany	Absp.	1,000
Wirt Gasoline Co., Bradford, Pa.	Richburg	Comp	*500

OHIO

	Field location—	Type of plant	Daily cap'y (gals.)
American Oil Development Co., Pittsburgh, Pa.	Monroe County	Comp.	500
American Oil Development Co., Pittsburgh, Pa.	Monroe County	Comp.	200
Hope Construction & Refining Co., Fly	Fly	Comp.	300
Hope Construction & Refining Co.	New Matamoras	Comp.	200
Hope Construction & Refining Co.	New Matamoras	Absp.	1,200
Jefferson Gasoline Co., Ryland	Sec. 27, Wells Twp.	Comp.	250
Muskingum Oil Co., Sistersville, W. Va.	Perry Twp., Monroe County	Comp.	*1,000
Norris, Mrs. Jennie, Parkersburg, W. Va.	Sec. 11, Newport Twp., Washington County	Comp.	100
Ohio Producing & Refining Co. (The)	Sec. 22, Chippewa Twp., Wayne County	Char.	6,000
Preston Oil Co., Homer	Burlington Twp., Licking County	Absp.	15,000
Preston Oil Co., Pavonia	Weller Twp., Richland County	Absp.	*15,000
Preston Oil Co., Sugar Grove	Berne Twp., Fairfield County	Absp.	15,000
Preston Oil Co., Caldwell	Caldwell	Absp.	*3,000
Preston Oil Co., Pomeroy	Sutton Twpt., Meigs County	Absp.	*2,000
Preston Oil Co., Zanesville	Wayne Twp., Muskingum County	Absp.	*2,000
Preston Oil Co., Medina	York Twp., Medina County	Absp.	*3,000
Reno Oil Co., Sistersville, W. Va.	Monroe County	Comp.	108
River Gas Co.	New Matamoras	Absp.	125
Southern Oil Co., Schley	Archers Fork, Washington County	Comp.	150
Southern Oil Co., Southern Valley	Sycamore Valley, Monroe County	Comp.	50
Sylvania Producing Co.	Woodfield, 20 mi. S	Comp.	200
Tuel & Thoenen	Fly	Comp.	150
Tuel & Thoenen	Fly, 2 mi. SW	Comp.	200
Tuel & Thoenen	New Matamoras, 6 mi. SW	Comp.	150
Tuel & Thoenen	New Matamoras, 2 mi. W	Comp.	150
Tyler Oil Co., Sistersville, W. Va.	Monroe County	Comp.	17

OKLAHOMA

Akin Gasoline Co., Box 1402, Tulsa	Dewey	Comp.	1,000
Akin Gasoline Co., Box 1402, Tulsa	Bixby	Comp.	1,000
Altitude Petroleum Corp., Kennedy Bldg., Tulsa	Oilton	Comp.	*5,000
Amerada Petroleum Corp., Box 596, Ardmore	W half SE, Sec. 20-5s-1e	Absp.	*1,500
Amerada Petroleum Corp., Box 686, Healdton	SE Sec. 31-2s-2w	Absp.	6,000
Amerada Petroleum Corp., Box 1028, Okmulgee	NE NE, Sec. 13-12n-11e	Comp.	2,000
Amerada Petroleum Corp., Box 92, Earlsboro	Sec. 16-9n-5e	Absp.	10,000
Amerada Petroleum Corp., Harjo	N half W half NE, Sec. 7-8n-5e	Absp.	20,000
Amerada Petroleum Corp., Box 92, Earlsboro	SW NW, Sec. 17-9n-5e	Absp.	10,000
Amerada Petroleum Corp., R.F.D. 7, Oklahoma City	SE, Sec. 30-11n-2w	Comp.	4,000
Barco Gasoline Co., Wirt	Healdton Field	Comp.	3,000
Barnsdall Oil Co., Box 224, Avant	SE, Sec. 18-23-12	Absp.	40,000
Barnsdall Oil Co., Box 518, Earlsboro	SW SW, Sec. 11-8-5	Absp.	25,000
Barnsdall Oil Co., Box 518, Earlsboro	NE NE, Sec. 15-9-5	Absp.	2,500
Barnsdall Oil Co., Box 2039, Tulsa	SE, Sec. 5-20-12	Absp.	2,500
Barnsdall Oil Co., Box 242 Bartlesville	NW NW, Sec. 29-25-11	Absp.	4,000
Barnsdall Oil Co., Box 228, Osage	SW SW, Sec. 20-21-9	Absp.	2,500
Barnsdall Oil Co., Box 79, Okmulgee	SW, Sec. 23-14-11	Comp.	2,000
Barnsdall Oil Co., Box 856, Beggs	N half NE, Sec. 6-14-12	Absp.	8,000
Bartlett Gasoline Co., 313 Wright Bldg., Tulsa	Sec. 23-14-19	Absp.	14,000
Bell Oil & Gas Co., Tulsa	Mounds	Absp.	1,500
Bell Oil & Gas Co., Tulsa	Wynona	Absp.	1,000
Bell Oil & Gas Co., Tulsa	Stone Bluff	Absp.	1,000
Carter Oil Co., Box 801, Tulsa	Sec. 23-4s-2w	Absp.	6,000
Carter Oil Co., Box 801, Tulsa	Sec. 9-26n-6e	Absp.	12,000
Carter Oil Co., Box 801, Tulsa	Sec. 3-10n-6e	Absp.	16,000
Carter Oil Co., Box 801, Tulsa	Sec. 15-9n-6e	Absp.	90,000
Coline Gasoline Corp.	Oklahoma City	Absp.	80,000
Comar Gasoline Co., Tonkawa	NE, Sec. 2-24n-1w	Absp.	30,000
Comar Oil Co., Blackwell	SW, Sec. 21-29n-1w	Absp.	10,000
Comar Oil Co., Blackwell	NW, Sec. 5-28n-1w	Absp.	10,000
Cosden, J. S., Inc., Fort Worth, Tex.	Sec. 31-19n-4w	Absp.	*50,000
Cosden, J. S., Inc., Fort Worth, Tex.	Sec. 19-11n-11e	Comp.	1,000
Cromwell-Franklin Oil Co., Oklahoma City	SE SW SE, Sec. 12-11n-3w	Absp.	30,000
Crosbie & Moran, Inc., Box 715, Earlsboro	NE NE, Sec. 2-9-5	Absp.	*20,000
Crosbie & Moran, Inc., Box 247, Marshall	NW, Sec. 20-19-4	Absp.	2,000
Crosbie & Moran, Inc., Box 1727, Konawa	SE SE, Sec. 8-6-6	Absp.	15,000
Crosbie & Moran, Inc., Box 84, Pearson	S half S half NE, Sec. 15-7-4	Absp.	20,000
Crosbie, Porter & Martin, Box 625, Okemah	SW SE, Sec. 29-12-10	Absp.	20,000
Deep Rock Oil Corp., Shamrock	Sec. 4-16-7	Absp.	5,000
Deep Rock Oil Corp., Kellyville	Sec. 17-17-11	Comp.	4,000
Deep Rock Oil Corp., Mehan	Sec. 23-18-3	Absp.	8,000
Deep Rock Oil Corp., Cushing	Sec. 9-18-0	Absp.	4,000
De Soto Gasoline Co., Muskogee	Sec. 5-14-18	Comp.	366
Devonian Oil Co., Tulsa, Okla.	NE, Sec. 32-7n-6w	Absp.	*3,000
Devonian Oil Co., Tulsa, Okla.	SE, Sec. 22-17n-10e	Absp.	*20,000
Devonian Oil Co., Tulsa, Okla.	SE, Sec. 22-20n-12e	Absp.	*5,000
Dewey Portland Cement Co., Dewey, Okla.	Dewey	Absp.	2,500
Eagle-Picher Mining & Smelting Co. Henryetta, Okla.	Sec. 6-11-13	Absp.	5,000
Eason Oil Co., Enid	NE, 24-22-4w	Comp.	2,000
Eason Oil Co., Enid	Crescent	C-A	12,000
Empire Oil & Refining Co., Tallant	SE, Sec. 35-25-10	Absp.	20,000
Empire Oil & Refining Co., Seminole	SE, Sec. 24-9-6	Absp.	25,000
Empire Oil & Refining Co., Seminole	NE, Sec. 34-9-6	Absp.	*20,000
Empire Oil & Refining Co., Seminole	SW, Sec. 14-8-6	C-A	20,000
Empire Oil & Refining Co., Seminole	NE, Sec. 11-8-5	Absp.	25,000
Empire Oil & Refining Co., Konowa	NW, Sec. 9-6-6	Absp.	20,000
Empire Oil & Refining Co., Asher	NE, Sec. 22-6-3	Absp.	30,000
Empire Oil & Refining Co., Konawa	NE, Sec. 29-6-6	Absp.	*10,000
Enfisco Oil Corp., Box 2021, Tulsa	NE, Sec. 17-17-13, Bixby	Comp.	1,500
Foster & Norwood Oil Co., Bartlesville	Barnsdall	Absp.	4,000
Franklin Wirt, Petroleum Corp., Oklahoma City	NW NW, Sec. 12-11n-3w	Absp.	20,000
Glomar Gasoline Co., Jennings	Jennings	Absp.	2,500
Glomar Gasoline Co., Oakhurst	Oakhurst	Absp.	1,800
Grimes, Charles W., and Park T., Box 322, Tulsa	Sec. 35-20-9	Comp.	1,000
Grimes, Otha H., and Roy O. Neal, Drumright	Sec. 17-17-7, Creek County	Absp.	3,000
Grimes Gasoline Co., Tulsa	Okemah	Absp.	5,000
Grimes Gasoline Co., Tulsa	Keystone	Absp.	1,500
Grimes Gasoline Co., Tulsa	Weleetka	Comp.	1,500
Grimes Gasoline Co., Tulsa	Weleetka	Absp.	5,000
Gypsy Oil Co., Box J, Kiefer	N half SW, Sec. 16-17-12	Comp.	12,500
Gypsy Oil Co., Box 128, Drumright	E half NE, Sec. 5-17-7	Comp.	3,300
Gypsy Oil Co., Box 128, Drumright	NE SW, Sec. 10-16-7	Comp.	2,400
Gypsy Oil Co., Box 338, Cleveland	SE, Sec. 1-21-7	Comp.	2,400
Gypsy Oil Co., Route 2, Kaw City	NW, Sec. 24-27-5e	Absp.	12,000
Gypsy Oil Co., Box 1513, Three Sands	NW, Sec. 2-24-1w	Absp.	4,000
Gypsy Oil Co., Box 128, Drumright	NE, Sec. 3-14-8e	Absp.	2,600
Gypsy Oil Co., Box 128, Drumright	NW, Sec. 11-14n-5e	Absp.	*3,500
Gypsy Oil Co., Box 967, Seminole	SE SW, Sec. 14-7n-6e	Absp.	8,000
Gypsy Oil Co., Box 967, Seminole	SE NW, Sec. 7-8-6e	Absp.	15,000
Harland Oil Co., Wolco, Okla.	SW, Sec. 20-25-11	Absp.	1,200
Harland Oil Co., Wolco, Okla.	NE, Sec. 25-24-11	Absp.	1,200
Indian Territory Illuminating Oil Co., Oklahoma City	SE, Sec. 24-11-3	Absp.	25,000
Indian Territory Illuminating Oil Co., Oklahoma City	SW, Sec. 19-11-2	Absp.	25,000
Indian Territory Illuminating Oil Co., Oklahoma City	SE, Sec. 13-11-3	Absp.	25,000
Indian Territory Illuminating Oil Co., Oklahoma City	NW, Sec. 31-11-2	Absp.	25,000
Indian Territory Illuminating Oil Co. and Franklin-Cromwell Interests, Oklahoma City	NE, Sec. 19-11-2	Absp.	*20,000
Lebow (C. H.), Drumright	Sec. 8-17n-7e	Absp.	1,800
Magnolia Petroleum Co., Yale	NE SW, Sec. 6-19n-6e	Absp.	4,500
Magnolia Petroleum Co., Oilton	NE, Sec. 7-18n-7e	Absp.	9,500
Magnolia Petroleum Co., Shamrock	SW, Sec. 3-16n-7e	Absp.	8,250
Magnolia Petroleum Co., Davenport	SW, Sec. 34-15n-5e	Absp.	3,750
Magnolia Petroleum Co., Earlsboro	NW NW SE, Sec. 10-9n-5e	Absp.	6,000
Magnolia Petroleum Co., St. Louis	NW SW SE, Sec. 15-7n-4e	Absp.	13,000
Magnolia Petroleum Co., Wewoka	W 7.65 ac., Lot 4, Sec. 32-8n-8e	Absp.	5,750
Magnolia Petroleum Co., Duncan	NW NW, Sec. 19-1s-8w	Comp.	600
Magnolia Petroleum Co., Graham	SE SE SE, Sec. 23-2s-3w	Absp.	5,000
Masoneal Gasoline Co., Box 516, Tulsa	Sec. 23-21n-8e	Comp.	1,500
Midco Oil Corp., Tulsa	Billings, 8 mi. S	Comp.	*20,000
Midco Oil Corp., Tulsa	Dewey	Comp.	*10,000
Midco Oil Corp., Tulsa	Drumright	Comp.	5,000
Midco Oil Corp., Tulsa	Oilton	Comp.	10,000
Mid-Continent Petroleum Corp., Tulsa	SE SE, Sec. 22-17-7	Absp.	11,000
Mid-Continent Petroleum Corp., Tulsa	E half NW, Sec. 5-16-15	Comp.	1,500
Mid-Continent Petroleum Corp., Tulsa†	SE, Sec. 13-22-4w	Absp.	10,000
Mid-Continent Petroleum Corp., Tulsa	SW, Sec. 12-13-13	Absp.	1,100
Mid-Continent Petroleum Corp., Tulsa	NE SW, Sec. 15-10-8	Absp.	13,000
Mid-Continent Petroleum Corp., Tulsa	S half SE, Sec. 28-17-14	Comp.	500
Mid-Continent Petroleum Corp., Tulsa	W half NW, Sec. 17-9-8	Absp.	1,800
Mid-Continent Petroleum Corp., Tulsa	NW, Sec. 8-15-6	Absp.	900
Mid-Continent Petroleum Corp., Tulsa	NW, Sec. 28-20-12	Absp.	900
Mid-Kansas Oil & Gas Co., Thompson Bldg., Tulsa	Sec. 27-16-9, Creek County	C-A	10,000
Moon Gasoline Co., Tulsa	Muskogee	Comp.	500
Moon Gasoline Co., Tulsa	Bixby	Comp.	1,500
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Oilton	Absp.	2,000
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Slick	Absp.	1,800
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Terlton	Absp.	1,700
National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.	Terlton	Absp.	800
Neal Gasoline Co., Osage	Sec. 13-21-8	Absp.	4,100
Neal Gasoline Co., Copan	Sec. 32-28-13	Absp.	1,200
Oil State Gasoline Co.	NE, Sec. 7-18n-13e	Comp.	2,500
Oil State Gasoline Co., Jenks	NE, Sec. 13-19n-5e	Comp.	2,000
Oklahoma Gasoline Plants, Inc., Drumright	Sec. 18-18-7e	Absp.	8,000
Orfic Gasoline Production Co., Tulsa	Cleveland	Comp.	2,000
Peppers Gasoline Co., Enid	Enid	Absp.	5,000
Phillips Petroleum Co., Bartlesville	W half SW, Sec. 32-27-6	Absp.	42,000
Phillips Petroleum Co., Bartlesville	NW SW, Sec. 32-11-2w	Absp.	40,000
Phillips Petroleum Co., Bartlesville	NW SW, Sec. 33-11-8	Absp.	37,500
Phillips Petroleum Co., Bartlesville	NE NE, Sec. 26-27-5	Absp.	45,000
Phillips Petroleum Co., Bartlesville	SE NW, Sec. 24-11-11	Absp.	17,000
Phillips Petroleum Co., Bartlesville	NW NW, Sec. 23-7-6	Absp.	25,000
Phillips Petroleum Co., Bartlesville	S half, Sec. 1-11-3	Absp.	60,000
Phillips Petroleum Co., Bartlesville	SW NW, Sec. 12-25-11	Absp.	5,000
Phillips Petroleum Co., Bartlesville	SE SE, Sec. 6-24-10	Absp.	14,000
Phillips Petroleum Co., Bartlesville	SW NW, Sec. 33-8-8	Absp.	40,000
Phillips Petroleum Co., Bartlesville	N half NW, Sec. 3-9-9	Absp.	50,000
Powers, M. F., Depew	Sec. 5-15-8	Absp.	3,500
Powers, M. F., Hazel	Sec. 30-7-5	Absp.	1,000
Powers & Quinlan, Box 696, Beggs	SW SE, Sec. 2-14-12	Comp.	1,000
Powers & Quinlan, Box 696, Beggs	SW SE, Sec. 5-14-12	Comp.	500
Powers & Quinlan, Box 696, Beggs	Sec. 22-13-14	Comp.	500
Pure Oil Co., Drumright	Sec. 32-18n-7e	Comp.	4,000
Pure Oil Co., Oilton	Sec. 32-19n-7e	Comp.	3,000
Pure Oil Co., Healdton	Sec. 11-4s-3w	Comp.	1,200
Pure Oil Co., Depew	Sec. 5-15n-8e	Comp.	2,500
Pure Oil Co., Seminole	Sec. 26-9n-6e	Comp.	10,000
Pure Oil Co., Seminole	Sec. 1-22n-8e	Comp.	22,000
Reserve Petroleum Co., Box 338, Barnsdall	Barnsdall	Absp.	2,500
Sand Springs Home, Gasoline Department, Sand Springs	Sec. 4-18-7	Comp.	*3,000
Shell Petroleum Corp., Stroud	SE, Sec. 1-14n-6e	Absp.	*5,000
Shell Petroleum Corp., Yale	NW, Sec. 18-19n-6e	Absp.	2,000
Shell Petroleum Corp., Drumright	NE, Sec. 8-17n-7e	Absp.	12,000
Shell Petroleum Corp., Maud	SE, Sec. 7-8n-5e†	Absp.	20,000
Shell Petroleum Corp., Marshall	SE, Sec. 19-19n-4w	Absp.	2,000
Shell Petroleum Corp., Oklahoma City	NE, Sec. 30-11n-2w	Absp.	12,000
Shell Petroleum Corp., Seminole	SE, Sec. 16-8n-6e	Absp.	*5,000
Signal Oil & Gas Co., Inc.	Bristow	Absp.	5,000
Silurian Oil Co., Missouri Pacific Bldg., St. Louis	Avant	Comp.	1,200
Sinclair Oil & Gas Co., Box 68, Cleveland	S half SW, Sec. 35-21-8	Comp.	4,000
Sinclair Oil & Gas Co., R.F.D. 1, Drumright	SW SW, Sec. 28-18-7	Comp.	9,000
Sinclair Oil & Gas Co., Box 578, Shamrock	SW SE, Sec. 28-17-7	Comp.	12,000
Sinclair Oil & Gas Co., Box 568, Covington	W half SW, Sec. 19-22-3	Absp.	20,000
Sinclair Oil & Gas Co., Box 398, Hominy	SW, Sec. 9-23-8	Comp.	4,000
Sinclair Oil & Gas Co., Box 6, Shidler	SW SE, Sec. 29-27-6	Absp.	30,000
Sinclair Oil & Gas Co., Box 368, Cromwell	NE, Sec. 4-10-8	Comp.	12,000
Sinclair Oil & Gas Co., Box 865, Seminole	NW NW, Sec. 35-9-6	Absp.	70,000
Sinclair Oil & Gas Co., Box 787, Seminole	SW NE, Sec. 10-8-6	Absp.	50,000
Sinclair Oil & Gas Co., Box 103, Pearson	SW, Sec. 24-7-4	Absp.	30,000
Sinclair Oil & Gas Co., Box 337, Capitol Hill, Oklahoma City	SE NW, Sec. 30-11-2	Absp.	50,000
Sinclair Oil & Gas Co., Box 297, Sasakwa	W half, Sec. 7-6-8	Comp.	20,000
Sinclair Oil & Gas Co., Box 1106, Seminole	NE NW, Sec. 19-9-6	Comp.	50,000
Skelly Oil Co., Box 536, Seminole	SW NW, Sec. 6-9n-6e	C-A	*13,000
Skelly Oil Co., Box 536, Seminole	SW, Sec. 17-9n-6e	Absp.	10,000
Skelly Oil Co., Box 157, Lyman	NW, Sec. 11-27n-5e	Booster	15,000
Skelly Oil Co., Maramec	NW SW NW, Sec. 15-20n-6e	Absp.	3,000
Skelly Oil Co., Box 168, Slick	NW cor., Sec. 15-15n-10e	Absp.	3,500
Skelly Oil Co., Box 413, Wynona	N half SW, Sec. 24-24n-9e, Osage County	Absp.	4,500
Southland Gasoline Co., Tulsa	Sec. 33-19-7, Creek County	Absp.	2,000
Southwest Production Co., Bristow	Sec. 20-16-9, Creek County	Comp.	2,000
Stanolind Oil & Gas Co., 910 S. Michigan Ave., Chicago, Ill.	Drumright	Comp.	20,000
Stanolind Oil & Gas Co., 910 S. Michigan Ave., Chicago, Ill.	Three Sands	Absp.	10,000
Sterling Oil & Gas Co., Tulsa	SE, Sec. 1-21-11	Absp.	250
Superior Oil Corp., 315 Exchange Natl. Bank Bldg., Tulsa	NE, Sec. 2-9n-5e	Comp.	*10,000
Superior Oil Corp., 315 Exchange Natl. Bank Bldg., Tulsa	NW, Sec. 8-9-5	Comp.	*10,000
Test Oil Co., Bartlesville	Sec. 30-27-14	Comp.	*500
Texas Company, The (Delaware), Kiefer	Sec. 8-17n-12e	Comp.	13,900
Texas Company, The (Delaware), Drumright	Sec. 16-17-7e	Comp.	11,000
Texas Company, The (Delaware), Haskell	Sec. 22-15n-14e	Comp.	6,800
Texas Company, The (Delaware), Oilton	Sec. 9-18n-7e	Comp.	2,800
Texas Company, The (Delaware), Preston	Sec. 11-14n-12e	Comp.	*1,500
Texas Company, The (Delaware), Davenport	Sec. 2-14n-5e	Absp.	12,200
Texas Company, The (Delaware), Beggs	Sec. 22-15n-11e	Absp.	4,500
Texas Company, The (Delaware), McInnis	Sec. 30-25n-8e	Absp.	5,000
Texas Company, The (Delaware), Jenks	Sec. 2-18n-12e	Comp.	800
Tidal Refining Co., Philcade Bldg., Tulsa	Sec. 8-17n-7e	Absp.	15,000
Tidal Refining Co., Philcade Bldg., Tulsa	Sec. 14-17n-12e	Absp.	15,000
Union Gasoline Co. Independence, Kans	Washington County	Absp.	2,500
Victor Gasoline Co., Drumright	Sec. 8-17-7	C-A	*3,000
Victor Gasoline Co., Bristow	Sec. 27-16-9	Absp.	5,000
Victor Gasoline Co., Bristow	Sec. 8-16-8	Comp.	1,000
Victor Gasoline Co., Davenport	Sec. 3-14-5	Absp.	*800
Victor Gasoline Co., Seminole	Sec. 10-9-6	Absp.	*1,500
Victor Gasoline Co., Seminole	Sec. 11-8-6	Absp.	5,000
Victor Gasoline Co., Lima	Sec. 5-7-7	Absp.	*21,000
Warner-Caldwell Oil Co., Titusville, Pa.	Nowata, Claggett Dist.	C-A	*500
Warner-Caldwell Oil Co., Titusville, Pa.	Nowata, Salt Creek Dist.	Absp.	750
Warner-Caldwell Oil Co., Titusville, Pa.	Nowata, Big Creek Dist.	Comp.	750
Warner-Caldwell Oil Co., Titusville, Pa.	Nowata, Adair Pool	C-A	400
Wentz, L. H., Oil Division, Ponca City	Sec. 34-25n-1w	Absp.	3,000
Wentz, L. H., Oil Division, Ponca City	Sec. 17-28n-1e	Absp.	3,500
Western Gasoline Corp., Box 213, Tulsa	Sec. 24-17n-10e	Absp.	4,500
Westoak Gasoline Co., Box 507, Sayre	SE SW, Sec. 21-9-23w	Absp.	10,000
Wilcox, H. F., Oil & Gas Co., Tulsa	Sec. 2-15-8	Absp.	1,200
Wiser Oil Co., Bartlesville	Sec. 31-25-17e	Comp.	2,000
Wolverine Petroleum Corp., Avant	NE, Sec. 12-23n-11e	Comp.	1,500
Wolverine Petroleum Corp., Avant	E half, Sec. 24-24n-11e	C-A	6,500

Field location—	Type of plant	Daily cap'y (gals.)
Wolverine Petroleum Corp., Bartlesville	SE, Sec. 13-26n-12e	Comp. 2,000
Wolverine Petroleum Corp., Dillard	SW, Sec. 22-4s-2w	Absp 5,000
Wright, J. E., estate, Sapulpa	Kellyville	Absp. 4,500
Wiser Oil Co., Bartlesville	Sec. 31-25-17e	Comp. 2,000

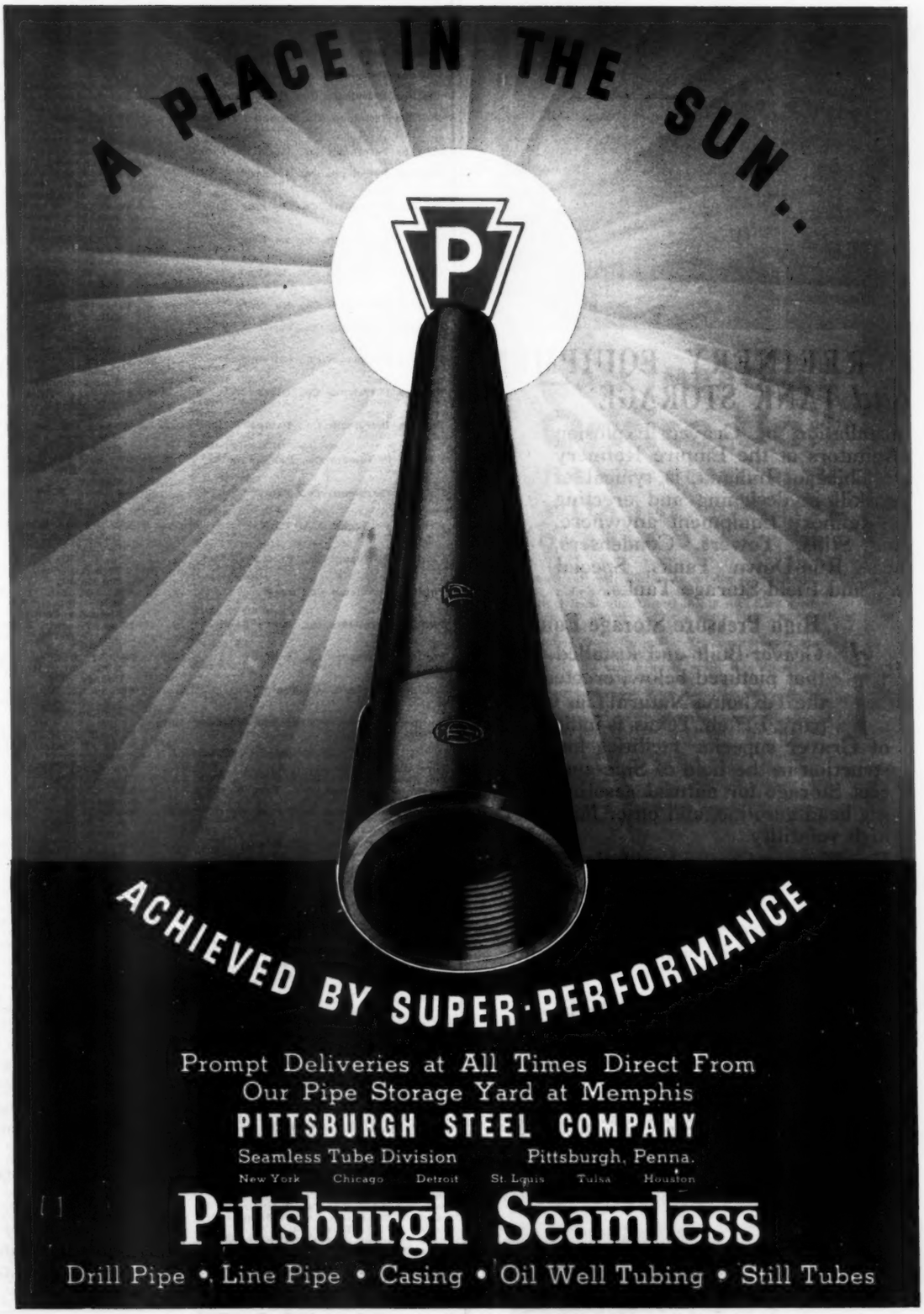
†Owned jointly with Continental Oil Co. ‡Owned jointly with The Texas Company. §Plant owned jointly with Sinclair Oil & Gas Co.

PENNSYLVANIA

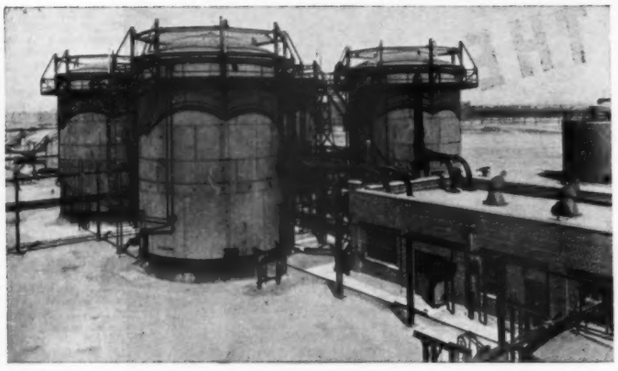
Alum Rock Gas Co., Oil City	Fern	Comp.	200
Atlas Oil Co., Clarion	Near Tylersburg	Comp.	350
Barbory & Hardt	Wildwood	Comp.	11
Bartoe, Harry T., Petrolia	Petrolia	Comp.	25
Bayliss & Fasenmeyer	Titusville, 2 mi. S	Comp.	1,000
Berry, Pryor	Petrolia	Comp.	25
Brown, Clara L.	Kinzua	Comp.	100
Buzard Gas Co., Emlenton	Emlenton, 1 mi. E	Comp.	50
Carnahan, Charles E., and Lida M	Tidioute, ¼ mi. W	Comp.	500
Carnegie Natural Gas Co., Lone Pine	Washington County	Absp.	1,000
Carnegie Natural Gas Co.	Mount Morris	Absp.	200
Carnegie Natural Gas Co., Waynesburg	Greene County	Absp.	4,500
Carpenter, M. A., Karns City	Fairview Twp.	Comp.	200
Chambers Oil Co.	.....	Comp.	150
Christie & Timblin	Evans City	Comp.	*25
Clinger Oil & Gas Co., Tidioute	Triumph Twp., Warren County	Comp.	750
Clinger Oil & Gas Co., Tidioute	Truemans, Forest County	Comp.	750
Cochran, John G., Sheffield	Lot 438, Sheffield Twp.	Absp.	1,100
Coffin, C. J., Chicora	Karns City	Comp.	75
Coffin, C. J., Chicora	Chicora	Comp.	75
Columbia Gas & Elec. Corp., McKinley	Elk County	Absp.	1,500
Columbia Gas & Elec. Corp., Majorville	West Twp.	Absp.	7,080
Columbia Gas & Elec. Corp., Waynesville	Franklin Twp.	Absp.	3,930
Columbia Gas & Elec. Corp., Heard	Finley Twp., West County	Absp.	2,550
Conquer, S. J.	Sheffield	Comp.	*80
Cook Oil Lease, Kelletville	Mayburg	Comp.	417
Daugherty, C. R., Y.M.C.A. Bldg., Butler	Herman, Butler County	Comp.	20
Daugherty, C. R. and M. G., Y.M.C.A. Bldg., Butler	Petrolia, Butler County	Comp.	40
Daugherty, C. R., Y.M.C.A. Bldg., Butler	Oakdale, Allegany County	Comp.	90
Dempseytown Gas Co., Oil City	Leeper	Comp.	200
Dunlap, Harry G., Chicora	Chicora, 1 mi. W	Comp.	11
Edwards, E. A., Titusville	Titusville	Comp.	170
Elsworth, Hefron & Co.	Lucinda	Comp.	400
Ellenberger, W. J., & Sons	.....	Comp.	300
Elliott Bros.	Chicora	Comp.	500
Equitable Gas Co., Rogersville	¼ mi. E of Rogersville	Absp.	3,000
Equitable Gas Co., R.F.D. 1, Clarksburg, Pa.	5 mi. SE Marianna	Absp.	2,000
Federal Oil & Gas Co., McDonald	McDonald	Comp.	100
Fleming, J. E., Titusville	Grand Valley	Comp.	500
Forest Chemical Co.	Barnes	Absp.	300
Forest Oil & Gas Co., Clinton	Clinton, 3 mi. N	Comp.	300
Gamble, James	Karns City, 1½ mi. E	Comp.	75
Gould, Nancy E., & Son., R.F.D. 6, Butler	Penn Twp.	Comp.	10
Hadden, James B., Sheffield	Henry's Mill	Comp.	84
Hague & Co.	Tidioute	Comp.	500
Haskell & Bayliss	Emlenton, 4 mi. E	Comp.	150
Haskell & Dunham, Pleasantville	Southwest Twp., Warren County	Comp.	100
Haskell, Roth & Bayliss, Tidioute	Tidioute, 1 mi. SW	Comp.	1,000
Haselwood Oil Co., Petrolia	Sheffield, S.	Comp.	500
Hickey & Rieg, Clarendon	Henry's Mill	Comp.	300
Home Gas Co., Clarion	Highland Twp.	Comp.	....
Hope Construction & Refining Co.	Brave	Absp.	20,000
Hope Construction & Refining Co.	Imperial	Char.	2,600
Hope Construction & Refining Co.	McKeesport	Char.	*2,600
Hope Construction & Refining Co.	Mayport	Absp.	1,500
Hope Construction & Refining Co.	Yatesboro	Absp.	*900
Hunter, Livingston L. Trust, Tidioute	Frankcyville, Forrest County	Comp.	*300
Jackson, Fred W.	Chicora	Comp.	360
Jennings, E. H., Bros. Co., 608 Columbia Bldg., Pittsburgh	Fayette Twp., Allegheny County	Comp.	1,000
Jennings, E. H., Bros. Co., 608 Columbia Bldg., Pittsburgh	Fayette Twp., Allegheny County	Comp.	150
Johnson, C. H., and H. G. Dunlap	Chicora	Comp.	60
Kapp & Brocklehurst, Tidioute	Tidioute	Comp.	200
McMeekin, Chas. T., Karns City	Karns City, 1½ mi. SW	Comp.	50
Mars Oil Co. (The), Oil City	Queen Sta.	Absp.	*1,500
Mars Oil Co. (The), Oil City	Lewis Run	Absp.	6,500
Mars Oil Co. (The), Oil City	Hampton Sta.	Absp.	4,000
Mars Oil Co. (The), Oil City	Van	Absp.	7,500
Mars Oil Co. (The)	Miola	Absp.	*1,800
Martin, Orie L.	Butler, 4 mi. S	Comp.	8
Master & Hess, Inc.	Fern, 1 mi. W	Comp.	100
Midland Oil Co., Petroleum Center	Petroleum Center	Comp.	1,200
Miller Gould & Co., Butler	6 mi. from Butler	Comp.	19
Miller & Marshall	Karns City, 1½ mi.	Comp.	25
Montgomery, James, R.F.D. 1, McCoy Road	McKee's Rocks	Comp.	100
Moore, Way & Harrison	Titusville, 7 mi. N	Comp.	150
Myers Bros. & Hazzard	Tidioute, 1 mi. N	Comp.	100
National Gasoline Co.	Grand Valley	Comp.	250
National Gasoline Co.	West Hickory	Comp.	250
North Penn Gas Co., 103 Mill St., Port Allegany	Sharon, Potter County	Absp.	*600
O'Hara, Sarah C., 218 E. North St., Butler	Fairview Twp.	Comp.	100
Ostrander & Daugherty, Petrolia	Petrolia	Comp.	30
Parker, H. R., Chicora	Donegal and Oakland Townships, Butler	Comp.	125
Pennsylvania Fuel Supply Co.	Clarion	C-A	*800
Pennsylvania Oil Co.	Sheffield	C-A	10,000
Pequignot, E. O., Tidioute	West Hickory N	Comp.	*500
Pequignot, E. O., Tidioute	Forest City	Comp.	*100
Pequignot, E. O., Tidioute	Harmony Twp., Forest County	Comp.	*200
Pequignot, E. O., Tidioute	Webber farm, Forest County	Comp.	*100
Pioneer Oil Co., Pioneer	Pioneer	Comp.	600
Porter Bros., Catfish	Catfish, 1 mi. E	Comp.	100
President Oil Co., Emlenton	Bruin, 2 mi. W	Comp.	50
President Oil Co., Emlenton	Emlenton, 2 mi. SW	Comp.	50
President Oil Co., Emlenton	Fryburg, 6 mi. N	Comp.	500
Price, Harry D., Renfrew	Butler Twp., Butler County	Comp.	35
Ramage, S. Y.	Tidioute	Comp.	20
Red Brush Oil Co., Tionesta	6 mi. S Tionesta	Comp.	100
Riddle Farm Oil Co., Karns City	½ mi. S Karns City	Comp.	50
Ritzert Bros., Chicora	Chicora	Comp.	70
Sand Hill Lease, Tidioute	Perry Twp., Armstrong		
Say, George K., R.F.D. 2, Karns City	Triumph Twp.	Comp.	40
	County	Comp.	40
Sherwin, Wm. E., Karns City	Karns City, ½ mi. S	Comp.	15
Sloan & Zook Co., Kane	Kane	Absp.	1,500
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh	Clarion County	Comp.	150
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh	Clarion County	Comp.	150
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh	Clarion County	Comp.	150
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh	Venango County	Comp.	150
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh	Lawrence County	Comp.	50
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh	Butler County	Comp.	50
South Penn Oil Co., Pittsburgh	Badon	Comp.	35
South Penn Oil Co., Pittsburgh	Bradford	Comp.	325
South Penn Oil Co., Pittsburgh	Chicora	Comp.	75
South Penn Oil Co., Pittsburgh	Chicora	Comp.	5
South Penn Oil Co., Pittsburgh	Chicora	Comp.	150
South Penn Oil Co., Pittsburgh	Evans City	Comp.	250
South Penn Oil Co., Pittsburgh	Guffey	Comp.	60
South Penn Oil Co., Pittsburgh	Henry's Mill	Comp.	150
South Penn Oil Co., Pittsburgh	Kane	Comp.	150
South Penn Oil Co., Pittsburgh	McDonald	Comp.	1,200
South Penn Oil Co., Pittsburgh	New Freeport	Absp.	750
South Penn Oil Co., Pittsburgh	Noblestown	Comp.	650
South Penn Oil Co., Pittsburgh	North Sheffield	Comp.	450
South Penn Oil Co., Pittsburgh	Parker's Landing	Comp.	80
South Penn Oil Co., Pittsburgh	President	Comp.	325
South Penn Oil Co., Pittsburgh	Tiona	Comp.	250
South Penn Oil Co., Pittsburgh	Truemans	Comp.	350
South Penn Oil Co., Pittsburgh	Van	Comp.	250
South Penn Oil Co., Pittsburgh	Wildwood	Comp.	100
Stephens, W. J., Grand Valley	Grand Valley	Comp.	100
Success Oil Co., Titusville	Petroleum Center, W	Comp.	1,500
Surety Oil Co., Inc., Titusville	2½ mi. S Titusville	Comp.	1,000
Tarbell & Co., Grand Valley	2 mi. from Grand Valley	Comp.	80
Thomas, R. L., Tidioute	Triumph Twp., Warren County	Comp.	200
Tompsett Brothers, Tidioute	Triumph Twp.	Comp.	200
Triangle Co., McKees Rocks	Pine Hollow Road	Comp.	300
Triumph Petroleum Co., Route 3, Tidioute	Triumph Twp., Warren County	Comp.	175
Veach, George, Tidioute	5 mi. S Tidioute	Absp.	500
Veach Oil Co., Oil City	Trunkeyville	Comp.	30
Vogebacker, A. J., and J. E.	Lucinda	Comp.	42
Wahl, A. R., Evans City	Wahl farm, Forward Twp.	Comp.	150
Warner, C. W.	Titusville, 6 mi. S	Comp.	20
Warner-Caldwell Oil Co., R.F.D. 2, Titusville	Titusville	Comp.	750
Wheeler, D. H., Box 86, Petrolia	Petrolia, 1¼ mi. SE	Comp.	200
Will, Jacob W., McDonald	Canonsburg	Comp.	55

TEXAS

Airolene Gasoline Corp., Kennedy Bldg., Tulsa, Okla.	Sec. 9, Blk. 27, H.&G.N. R.R. Sur.	Absp.	8,000
Amerada Petroleum Corp., Drawer C, Fry	Chas. Betts Sur. No. 625, Brown County	Absp.	6,000
Arab Gasoline Corp., Eastland	SE, Sec. 17, Blk. 4, H.& T.C. Ry. Sur.	Absp.	25,000
Barker & Goforth	Ranger, 5 mi. W	Absp.	*1,500
Bell Oil & Gas Co.	Borger	Absp.	25,000
Bell Oil & Gas Co., Burkburnett	Burkburnett	Absp.	20,000
Big Lake Oil Co., Texon	Sec. 2, Blk. 2, Reagan County	Absp.	50,000
Breckenridge Gasoline Co., Breckenridge	Breckenridge	Absp.	12,000
California United Gasoline Corp., Coleman	Overall ranch	C-A	10,000
California United Gasoline Corp., Coleman	Weaver ranch	C-A	10,000
Canadian River Gas Co., Colorado Springs, Colo.	Sec. 33, Blk. P. Mc., E.L. R.R. Sur., Moore County	Absp.	30,000
Cannon Gasoline Co., Box 963, Amarillo	2½ mi. N Amarillo	Absp.	5,000
Coltexo Corp., Lefors	Sec. 2, A.C.H.&B. Sur., Gray County	Absp.	40,000
Coltexo Corp., Lefors	Sec. 1, H.&G.N., Blk. B-2, Gray County	Absp	40,000
Coltexo Corp., Lefors	B.&B. Sur. 2, Gray County	Absp.	20,000
Columbian Gasoline Corp., Shamrock	Sec. 46, H.&G.N., Blk. 17, Wheeler County	Absp.	7,000
Consolidated Gasoline Co., Eastland	Eastland, 2 mi. SW	Absp.	16,000
Continental Oil Co., Wichita Falls	C. Winters Sur., Wichita County	Comp.	2,500
Continental Oil Co., Wichita Falls	C. Winters Sur., Wichita County	Comp.	*700
Empire Oil & Refining Co., Pampa	NE, Sec. 152, Blk. 3	Absp.	30,000
Gladewater Gasoline Co., Gladewater, Tex.	J. S. Crosby Sur.	Comp.	16,000
Graham Oil & Gas Co., Graham	Morrison farm	Absp.	8,000
Gulf Production Co., Fort Worth	Sec. 1, L.A.L. Sur., Stephens County	Absp.	10,600
Gulf Production Co., Fort Worth	Sur. 1, Eastland County	Comp.	7,500
Hanlon Gasoline Co., Breckenridge	3 mi. SE Breckenridge	Absp.	35,000
Hanlon Gasoline Co., Parks	6 mi. SE Breckenridge	Absp.	*20,000
Hanlon Gasoline Co., Eliasville	Eliasville	Absp.	*20,000
Henderson, F. C., Inc., Sanford	Sanford	Absp.	20,000
Huber Petroleum Co., Box 278, Borger	Sec., A.&B. Sur.	Absp.	33,000
Humble Oil & Refining Co., Rising Star	Brown County	Absp.	15,000
Humble Oil & Refining Co., Iraan	Pecos County	Absp.	*25,000
Humble Oil & Refining Co., Neches	Cherokee County	C-A	15,000
Humble Oil & Refining Co., Overton	Rusk County	Comp.	50,000
Humble Oil & Refining Co., Kilgore	Rusk County	Comp.	25,000
Humble Oil & Refining Co., Bellville	Austin County	Absp.	12,000
La Salle Petroleum Co., Wright Bldg., Tulsa, Okla.	Burkburnett	Comp.	*8,000
Lisbon Gasoline Co., Inc., Shreveport	Rusk County	Comp.	15,000
Lone Star Gas Co., Petrolia	3 mi. S Petrolia	Absp.	15,000
Lone Star Gas Co., Gainesville	2½ mi. W Gainesville	Absp.	*15,000
Lone Star Gas Co., Gordon	2 mi. E Gordon	Absp.	25,000
Lone Star Gas Co., Brazos	2 mi. E Brazos	Absp.	*15,000
Lone Star Gas Co., Desdemona	6 mi. SE Desdemona	Comp.	2,000
Lone Star Gas Co., Box 488, Ranger	9 mi. S Ranger	Comp.	8,000
Lone Star Gas Co., Box 852, Ranger	7 mi. NE Ranger	Comp.	2,000
Lone Star Gas Co., R.F.D. 1, Cisco	7 mi. SE Moran	Absp.	*5,000
Lone Star Gasoline Co., Box 788, Ranger	Ranger (4)	Absp.	32,000
Lone Star Gasoline Co., Box 788, Ranger	Eastland	Absp.	6,500
Lone Star Gasoline Co., Box 788, Ranger	Olden	Absp.	8,500
Lone Star Gasoline Co., Drawer 00, Breckenridge	Breckenridge	Absp.	31,000
Magnolia Petroleum Co., Burkburnett	J. G. Hardin farm, 1 mi. NW Burkburnett	Comp.	4,250
Magnolia Petroleum Co., Electra	Sec. 17, Blk. 13, H.&T.C. Ry Co. Sur.	Comp.	4,500
Magnolia Petroleum Co., Olden	R. S. Harris farm, Matt Finch Sur.	Absp.	9,000
Magnolia Petroleum Co., Desdemona	Caruth farm, Smelzer Sur.	Absp.	7,500
Magnolia Petroleum Co., Pampa	NE, Sec. 82, Blk. 3, I.&G. N. Ry. Sur.	Absp.	4,250
Magnolia Petroleum Co., Le Fors	Sec. 39, Blk. B-2, H.&G. N. Ry. Sur.	Absp.	15,000
Magnolia Petroleum Co., Skellytown	Sec. 91, Blk. 4, I.&G.N. Ry Sur.	Absp.	3,500
Magnolia Petroleum Co., Lela	NE, Sec. 39, Blk. 24, H. &G.N. Sur.	Absp.	2,000
Mid-Kansas Oil & Gas Co., Thompson Bldg., Tulsa, Okla.	J. W. Hill lease, Stephens County, Eliasville	Absp.	6,000
Mid-Kansas Oil & Gas Co., Thompson Bldg., Tulsa, Okla.	Tullos lease, Stephens County, Eliasville	Absp.	15,000
Midland Gasoline Co., Box 67, Coleman	Coleman	Absp.	20,000
National Supply Co. of Texas, Shamrock	SE, Sec. 41, Blk. 24	Absp.	10,000
Ockland Gasoline Production, Co., Tulsa, Okla.	Desdemona	Absp.	4,000
Omar Gasoline Co., Wichita Falls	NW of Burkburnett	Comp.	11,500
Orfic Gasoline Production Co. of Texas, 508 McBirney Bldg., Tulsa, Okla.	Desdemona	Comp.	4,000
Pacific American Gasoline Co. of Texas, Box 278, Borger	Sec. 28, Blk. Y, A.&B. Sur.	Absp.	16,000
Paramount Natural Gasoline Co.	Sec. 28, Blk. D-2, H.&G. M. Sur.	Absp.	16,000
Phillips Petroleum Co., Breckenridge	Sec. 8, T.&P. R.R. Sur., Blk. 5, Stephens County	Absp.	15,000
Phillips Petroleum Co., Borger	NE SE, Sec. 21, Blk. Y, A.&B. Sur.	Absp.	40,000
Phillips Petroleum Co., Bowers	W half, Sec. 62, H.&G.N. Sur., Blk. B-2, Gray County	Absp.	50,000


A PLACE IN THE SUN..
P
ACHIEVED BY SUPER-PERFORMANCE
Prompt Deliveries at All Times Direct From
Our Pipe Storage Yard at Memphis
PITTSBURGH STEEL COMPANY
Seamless Tube Division Pittsburgh, Penna.
New York Chicago Detroit St. Louis Tulsa Houston
Pittsburgh Seamless
Drill Pipe • Line Pipe • Casing • Oil Well Tubing • Still Tubes

GRAVER *Built*



SPECIAL REFINERY EQUIPMENT *and* TANK STORAGE

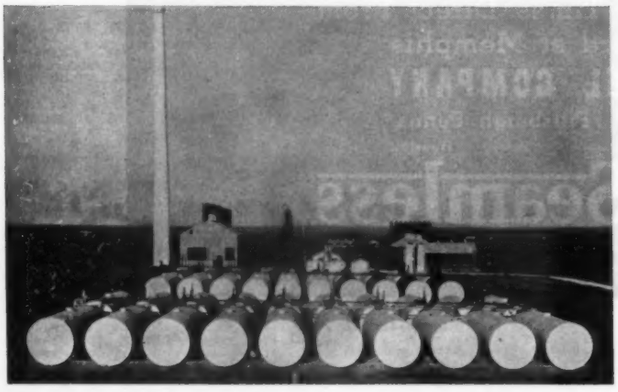
The installation of Graver Explosion Roof Agitators at the Empire Refinery in East Chicago, Indiana, is typical of Graver skill in designing and erecting Special Refinery Equipment anywhere, including Stills, Towers, Condensers, Agitators, Run-Down Tanks, Special Refinery and Field Storage Tanks.

Land **High Pressure Storage Equipment** Graver-Built and installed, like that pictured below, erected for the Texhoma Natural Gas Company, Fritch, Texas, is indicative of Graver superior facilities for construction in the field of Safe and Correct Storage for natural gasoline, casing head gasoline, and other liquids of high volatility.

For 75 years Graver has designed special equipment for handling, refining, and the safe, correct storage of petroleum products.

Use Graver engineering and construction experience.

GRAVER TANK & MFG. CORP.
East Chicago Indiana

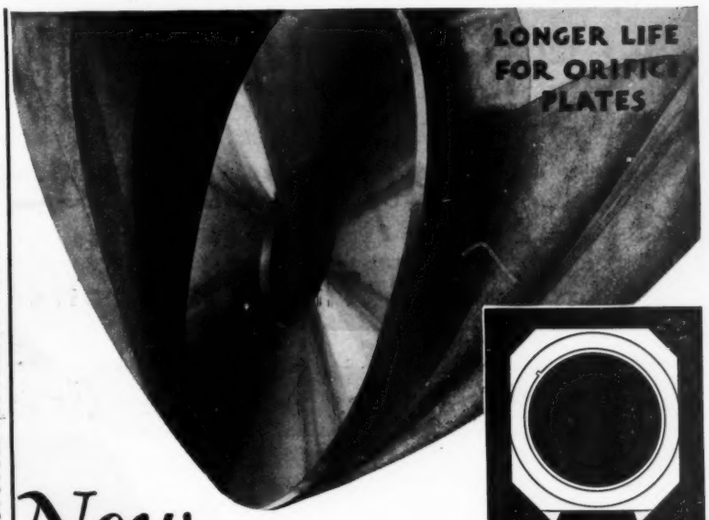


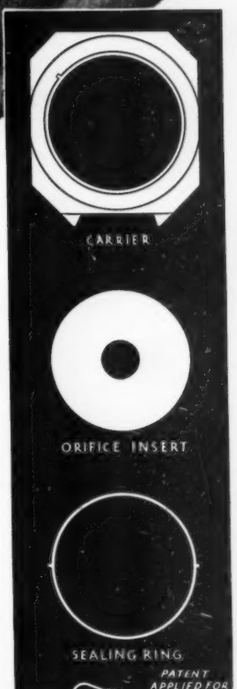
GRAVER BUILT

	Field location—	Type of plant	Daily cap'y (gals.)
Phillips Petroleum Co., Canadian	NW SE, Sec. 1, Blk. X02, Hutchinson County	Absp.	25,000
Phillips Petroleum Co., Carson	W. central, Sec. 115, I.&G. N. Sur., Blk. 5, Carson County	Absp.	20,000
Phillips Petroleum Co., Eliasville	6.88 ac. N half, Sur. 1,174 T.E.&L., Stephens County	Absp.	12,000
Phillips Petroleum Co., Frankell	Sec. 51, T.&P. Sur., Blk. 6, Stephens County	Absp.	8,500
Phillips Petroleum Co., Gorman	SE cor. Thos. Mulryne Sur. A377, H.&T.C., Blk. 1, Eastland County	Absp.	12,000
Phillips Petroleum Co., Gray	Sec. 32, H.&G.N. Sur., Blk. 2, Gray County	Absp.	100,000
Phillips Petroleum Co., Helios	W. A. Eaken 132-ac. tract, Eastland County	Absp.	15,000
Phillips Petroleum Co., Herron City	SE, Sec. 20, P. J. Humphrey Sur. A-153	Absp.	9,000
Phillips Petroleum Co., Hohertz	12 ac., Sec. 63, Blk. 4, T.&P.R.R. Sur., Stephens County	Absp.	5,000
Phillips Petroleum Co., Ibex	NW, Sec. 28, B. AL., Shackelford County	Absp.	45,000
Phillips Petroleum Co., Johnson	Cen. 60 ac., S half, Sec. 69, Blk. 46, H.&T.C. Sur., Hutchinson County	Absp.	50,000
Phillips Petroleum Co., Judkins	W 60 ac., N half S half Sec. 1, University land, Blk. 35, Ector County	Absp.	15,000
Phillips Petroleum Co., Le Fors	NE NE, Sec. 56, Blk. 25, H.&G.N. Sur., Gray County	Absp.	15,000
Phillips Petroleum Co., McCamey	NE NE, Sec. 216, C.C.S. D.&R.G.N.G.R.R. Sur., Blk. F, Crane County	Absp.	75,000
Phillips Petroleum Co., Necessity	Blk. 15, T.&P.R.R. Sur., Blk. 6, Stephens County	Absp.	2,500
Phillips Petroleum Co., North	SW, Sec. 35 and NW, Sec. 36, I.&G.N. Sur., Blk. 3, Gray County	Absp.	90,000
Phillips Petroleum Co., Oil City	20 ac., SE cor. R. D. Owens Sur. A-2,249, Young County	Absp.	7,500
Phillips Petroleum Co., Olney	17.61 ac., T.E.&L. Sur., Blk. 2,403, Archer County	Comp.	*10,000
Phillips Petroleum Co., Pampa	W half SW, Sec. 88, H.& G.N. Sur., Blk. B-2, Gray County	Absp.	45,000
Phillips Petroleum Co., Panhandle	SW, Sec. 113, I.&G.N.R.R. Sur., Blk. 5, Carson County	Absp.	15,000
Phillips Petroleum Co., Pantex	SE cor. Mary Whitley Sur., Blk. 8, Hutchinson County	Absp.	50,000
Phillips Petroleum Co., Phildan	NW SE, Sec. 88, Blk. B-2, H.&G.N.R.R. Sur., Gray County	Comp.	*20,000
Phillips Petroleum Co., Rockcreek	N half NW, Sec. 22, Blk. Y, A.&B. Sur., Hutchinson County	Absp.	45,000
Phillips Petroleum Co., Roeser	SW SW, Sec. 17, T.&P. R.R. Sur., Blk. 8, Stephens County	Absp.	12,000
Phillips Petroleum Co., South Bend	20 ac., N centr. J. Garrett Sur. A-108, Young County	Absp.	9,000
Phillips Petroleum Co., Sanford	Sec. 81, Blk. 46, H.&T.C. R.R. Sur., Hutchinson County	Absp.	20,000
Phillips Petroleum Co., Texroy	SE, Sec. 3, Blk. B-3, D.& S.E.R.R. Sur., Hutchinson County	Absp.	45,000
Philmore Gasoline Corp., 723 Kennedy Bldg., Tulsa, Okla.	E. half J. M. Daugherty 150 ac., Isaac Hughson Sur.	C-A	15,000
Pure Oil Co., Van	Van Zandt County	Comp.	45,000
Red River Oil Co., Box 712, Tulsa, Okla.	Electra	Comp.	5,000
Roeser & Pendleton, Inc., Fort Worth	NE 85, E.T. Ry. Sur., Shackelford County	Absp.	25,000
Roeser & Pendleton, Inc., Fort Worth, Tex.†	Reynolds ranch, Shackelford County, 7 mi. NW Albany	Absp.	25,000
Shamrock Oil & Gas Co., Pampa	Sec. 50, Blk. 25, H.&G.N. Sur.	Absp.	15,000
Shell Petroleum Corp., Pampa	SW, Sec. 83, Blk. 3, I.& G.N. Sur.	Absp.	10,000
Shell Petroleum Corp., Pampa	SE, Sec. 107, Blk. 5, I.& G.N. Sur.	Absp.	15,000
Signal Gasoline Co. of Texas, Box 157, Best	Best, Reagan County	Absp.	30,000
Skelly Oil Co., Box 178, Stinnett	NW cor. J. W. Proctor Sur., Moore County	Absp.	2,500
Skelly Oil Co., Box 952, Burkburnett	G. W. Darby or J. G. Hardin Sur.	Comp.	13,000
Skelly Oil Co., Box 127, Skellytown	NE, Sec. 174, Blk. 3	Absp.	15,000
Skelly Oil Co., Box 336, Whittenburg	NW, Sec. 5, Blk. Y, Hutchinson County	Char.	*4,000
Skelly Oil Co., Box 336, Whittenburg	SW NW SW, Sec. 11, Blk. Y, Hutchinson County	Char.	4,500
Skelly Oil Co., Box 336, Whittenburg	NW NW, Sec. 20, Blk. Y, Hutchinson County	Char.	2,000
Skelly Oil Co., Box 336, Whittenburg	SW, Sec. 4, Blk. B-4, D.& S. E. Ry. Sur.	Absp.	7,000
Skelly Oil Co., Box 336, Whittenburg	SW SE, Sec. 6, Blk. Y, Hutchinson County	Absp.	*15,000
Skelly Oil Co., Box 952, Burkburnett	H.T.&B.R.R. Sur. A-124, Wichita County	Comp.	1,500
Skelly Oil Co., Box 127, Skellytown	S half, Sec. 88, Blk. 4, I.&G.N.R.R. Sur.	Absp.	9,000
Skelly Oil Co., Box 127, Skellytown	NW cor., Sec. 86, Blk. 4, I.&G.N. Sur.	Char.	9,000
Skelly Oil Co., Box 952, Burkburnett	Waggoner County	Booster	.....
Southern Gasoline Co., Ranger	Tiffin	Absp.	2,500
South Plains P. L. Co., Lubbock	Sec. 45, Blk. 2, A.B.&M. Sur.	Absp.	35,000
Stanolind Oil & Gas Co., Desdemona	Desdemona	Comp.	10,000
Stanolind Oil & Gas Co., Burkburnett	Burkburnett	Comp.	*15,000
Stanolind Oil & Gas Co., Desdemona	Desdemona	Absp.	10,000
Sunray Oil Co., Tulsa, Okla.	Sunray, Moore County	Absp.	9,000
Texas Company, The (Delaware), Electra	½ mi. NW Electra	Comp.	9,300
Texas Company, The (Delaware), Burkburnett	3 mi. NW Burkburnett	Comp.	33,000
Texas Company, The (Delaware), Olney	2½ mi. NE Olney	Comp.	7,000
Texas Gasoline Co., Desdemona	1½ mi. from Desdemona	Absp.	2,000
Texas Pacific Coal & Oil Co., Fort Worth	Caddo	Absp.	15,000
Texas Pacific Coal & Oil Co., Fort Worth	Strawn	Absp.	5,000
Texas Pacific Coal & Oil Co., Fort Worth	Eliasville	Absp.	15,000
Texas Pacific Coal & Oil Co., Fort Worth	Caddo	Absp.	10,000
Texoma Natural Gas Co., 20 N. Wacker Drive, Chicago, Ill.	Fritch, Sec. 5, T.T.R.R. Sur., Blk. Y-2	Absp.	80,000
Vollwin Gasoline Co., 1325 Glenarm St., Denver	McCleskey farm, Frankell	Absp.	1,500
Waggoner Gasoline Co., Electra	Sec. 33, Blk. 4,	Absp.	20,000
Ward Gasoline Co., Sayre, Okla.	7 mi. N Breckenridge	Absp.	5,000
Western Oil Corp. of Texas, Box 216, Electra	4 mi. SE Electra	Absp.	8,000
Wilcox, H. F., Oil & Gas Co., Tulsa	Sec. 62, Blk. 3, I.&G.N. Sur.	Comp.	4,500

†Owned jointly with Continental Oil Co.

	Field location—	Type of plant	Daily cap'y (gals.)
WEST VIRGINIA			
American Oil Development Co., Pittsburgh, Pa.	McElroy district	Comp.	1,200
American Oil Development Co., Pittsburgh, Pa.	Mead district	Comp.	200
American Oil Development Co., Pittsburgh, Pa.	Lafayette district	Comp.	175
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., New York, N. Y.	Clendenin	Absp.	2,000
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., New York, N. Y.	Hastings	Comp	1,000
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., New York, N. Y.	Diamond	Comp.	2,500
Carnegie Natural Gas Co., Hundred	Hundred	Absp.	3,300
Carnegie Natural Gas Co., Pine Grove	Pine Grove	Absp.	3,000
Carnegie Natural Gas Co., Underwood	Underwood	Absp.	3,000
Carnegie Natural Gas Co., Woodruff	Woodruff	Absp.	1,800
Carnegie Natural Gas Co., Toll Gate	Ritchie County	Absp.	....
Casto Oil Co., St. Marys	Union district	Comp.	250
Chemical Oil & Gas Co., Big Bend	Grantsville	C-A	500
Cumberland & Allegheny Gas Co.	Jane Lew, 3 mi. S	Absp.	3,000
Dinsmoor & Co., St. Marys	Pleasants County	Comp.	380
Dun Mar Oil & Gas Co., Route 3, Fairview	Jarke Run	Comp.	50
Falling Rock Cannel Coal Co.	Weir	Absp.	3,000
Federal Oil & Gas Co., Elizabeth	Elizabeth, S	Comp.	250
Federal Oil & Gas Co., Weston	Weston, 8 mi.	Comp.	500
Hapgood, R. T., & Co., Charleston	Cedar Grove	Absp.	3,000
Hapgood, R. T., & Co., Charleston	Blue Creek	Comp.	1,000
Henighan & Hanlon, Sistersville	Doddridge County	Comp.	200
Hope Construction & Refining Co.	Barren Creek	Absp.	12,000
Hope Construction & Refining Co.	Bristol	Absp.	8,000
Hope Construction & Refining Co.	Ellenboro	Absp.	*300
Hope Construction & Refining Co.	Littleton	Absp.	15,000
Hope Construction & Refining Co.	Middlebourne	Comp.	400
Hope Construction & Refining Co.	Mount Clare	Absp.	2,500
Hope Construction & Refining Co.	Pine Grove	Absp.	40,000
Hope Construction & Refining Co.	Rachel	Absp.	10,000
Hope Construction & Refining Co.	Salem	Absp.	4,000
Hope Construction & Refining Co.	Sistersville	Absp.	400
Hope Construction & Refining Co.	Sistersville	Comp.	1,500
Hope Construction & Refining Co.	Sistersville	Comp.	1,000
Hope Construction & Refining Co.	Spencer	Absp.	*1,000
Hope Construction & Refining Co.	Waverly	Absp.	5,000
Huntington Development & Gas Co.	Hubbell	Char.	12,000
Jennings Oil Co., 608 Columbia Bldg., Pittsburgh	Wetzel County	Comp.	100
Kanawha Oil Co., 608 Columbia Bldg., Pittsburgh	Wetzel County	C-A	1,000
Kanawha Oil Co., 608 Columbia Bldg., Pittsburgh	Wetzel County	Comp.	100
Manufacturers Light & Heat Co., Rosbys Rock.	Clay Township	Absp.	1,740
Manufacturers Light & Heat Co., Forters Falls	Green Township	Absp.	6,540
Melrose Oil & Gas Co.	Middlebourne	Comp.	35
Melrose Oil & Gas Co.	Middlebourne	Comp.	25
Melrose Oil & Gas Co.	Middlebourne	Comp.	25
National Compressing Co., Parkersburg	Rutherford, Ritchie County	Comp.	50
New York Petroleum Co., Box 563, Parkersburg	Ritchie County	Comp.	150
New York Petroleum Co., Box 563, Parkersburg	Tyler County	Comp.	150
Ohio Fuel Oil Co., Stoffel	Elk district	Absp.	1,000
Ohio Fuel Oil Co., Charleston	Blue Creek	Comp.	1,050
Ohio Fuel Oil Co., Charleston	Schroeder	Comp.	2,400
Oil & Gas Co., 318½ Juliana St., Parkersburg	Ritchie County	Comp.	250
Owens, Libbey-Owens Gas Dept., Charleston	South Malden, Kanawha County	Absp.	10,000
Pittsburgh & West Virginia Gas Co., Hundred.	Wetzel County, 1 mi. N Hundred	Absp.	3,000
Pure Oil Co., Dawes	Kanawha County	Comp.	12,000
Reno Oil Co., Sistersville	Tyler County	Comp.	25
Reno Oil Co.	Tyler County	Comp.	37
Reno Oil Co.	Tyler County	Comp.	146
Reno Oil Co.	Ritchie County	Comp.	50
Reno Oil Co.	Ritchie County	Comp.	44
Reno Oil Co.	Ritchie County	Comp.	50
Reserve Gas Co., Box 1756, Pittsburgh, Pa.	Valley Chapel	Absp.	20,000
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.	Ellsworth, Tyler County	Comp.	150
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.	Green Twp., Wetzel County	Comp.	100
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.	Jefferson, Pleasants County	Comp.	*100
Southern Oil Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.	Murphy, Ritchie County	Absp.	*1,500
South Penn Oil Co., Pittsburgh, Pa.	Alvy	Comp.	1,200
South Penn Oil Co., Pittsburgh, Pa.	Beall's Mills	Comp.	200
South Penn Oil Co., Pittsburgh, Pa.	Blue Creek	Comp.	1,500
South Penn Oil Co., Pittsburgh, Pa.	Blue Creek	Comp.	1,800
South Penn Oil Co., Pittsburgh, Pa.	Bula (near Wana)	Comp.	350
South Penn Oil Co., Pittsburgh, Pa.	Charleston	Char.	2,800
South Penn Oil Co., Pittsburgh, Pa.	Clay	Comp.	750
South Penn Oil Co., Pittsburgh, Pa.	Coco	Comp.	1,500
South Penn Oil Co., Pittsburgh, Pa.	Fink	Comp.	300
South Penn Oil Co., Pittsburgh, Pa.	Glenville	Comp.	700
South Penn Oil Co., Pittsburgh, Pa.	Macfarlan	Comp.	1,200
South Penn Oil Co., Pittsburgh, Pa.	Mannington	Comp.	800
South Penn Oil Co., Pittsburgh, Pa.	Metz	Comp.	600
South Penn Oil Co., Pittsburgh, Pa.	Middlebourne	Comp.	250
South Penn Oil Co., Pittsburgh, Pa.	Middlebourne	Comp.	50
South Penn Oil Co., Pittsburgh, Pa.	Middlebourne	Comp.	150
South Penn Oil Co., Pittsburgh, Pa.	Pine Grove	C-A	1,500
South Penn Oil Co., Pittsburgh, Pa.	Shinnston	Comp.	50
South Penn Oil Co., Pittsburgh, Pa.	Shirley	Comp.	600
South Penn Oil Co., Pittsburgh, Pa.	Shirley	Comp.	500
South Penn Oil Co., Pittsburgh, Pa.	Shirley	Comp.	800
South Penn Oil Co., Pittsburgh, Pa.	Smithfield	Comp.	2,000
South Penn Oil Co., Pittsburgh, Pa.	Spencer	Comp.	1,500
South Penn Oil Co., Pittsburgh, Pa.	Statler Run	C-A	1,700
South Penn Oil Co., Pittsburgh, Pa.	Walton	Comp.	1,100
South Penn Oil Co., Pittsburgh, Pa.	Walton	Comp.	300
South Penn Oil Co., Pittsburgh, Pa.	Wolf Summit	Comp.	1,400
South Penn Oil Co., Pittsburgh, Pa.	Yawkey	Comp.	2,600
Sutton Bros., Inc., Steubenville, Ohio	Hancock County	Comp.	*200
Tuel & Thoenen, Sistersville	Sisterville (3)	Comp.	600
Tyler Oil Co., Sistersville	Tyler County	Comp.	25
Tyler Oil Co., Sistersville	Tyler County	Comp.	15
Tyler Oil Co., Sistersville	Tyler County	Comp.	18
Viking Gasoline Corp., Charleston	Morgantown	Char.	1,000
Viking Realty Co., Martha	Cabell County	Char.	1,000
Virginian Gasoline & Oil Co., Sandyville	Jackson County	Char.	40,000
Virginian Gasoline & Oil Co., Ona	Cabell County	Absp.	*18,000
Virginian Gasoline & Oil Co., Charleston	Kanawha County	Char.	25,000
Virginian Gasoline & Oil Co., Clendenin	Kanawha County	Absp.	40,000
Virginian Gasoline & Oil Co., Charleston	Kanawha County	Char.	2,000
Virginian Gasoline & Oil Co., Spencer	Roane County	Char.	12,000
Virginian Gasoline & Oil Co., St. Albans	Kanawha County	Char.	3,500
Virginian Gasoline & Oil Co., Louisia, Ky.	Wayne County	Char.	*2,500
Virginian Gasoline & Oil Co., Hubball	Lincoln County	Char.	12,000
Virginian Gasoline & Oil Co., Mammoth	Kanawha County	Absp.	2,500
Virginian Gasoline & Oil Co., Blue Creek	Kanawha County	Comp.	1,200
Virginian Gasoline & Oil Co., Stoffel	Kanawha County	Absp.	1,200
Virginian Gasoline & Oil Co., Elkview	Kanawha County	Absp.	1,000
Virginian Gasoline & Oil Co., Three Mile	Kanawha County	Absp.	3,500
Virginian Gasoline & Oil Co., Pad	Roane County	Absp.	800
Watson, G. L., Parkersburg	Belmont	Comp.	50
WYOMING			
Continental Oil Co., Denver, Colo.	Sec. 5, R. 78w, T. 39n	Absp.	15,000
Midwest Refining Co., Midwest	Sec. 36-40-79	Comp.	100,000
New York Oil Co., Casper	T. 32, R. 95, S. 10	Absp.	1,500
Ohio Oil Co., Manville	Niobrara County	Absp.	7,500
Ohio Oil Co., Rock River	Carbon County	Absp.	4,500
Ohio Oil Co., Columbus	Natrona County	Absp.	14,400
Ohio Oil Co., Kirby	Hot Springs	Comp.	7,560
Producers & Refiners Corp., Casper	NW, Sec. 7-26-89	Absp.	15,000
Standard Engineering Corp., Box 1739, Casper.	Casper	Absp.	2,500





Now

—AN IMPROVED

Orifice Unit

THE NEW ROFCO PLATE WITH INEXPENSIVE REMOVABLE DISC• • •

In keeping with our determination to cut the upkeep costs of orifice plates to the irreducible minimum, we have developed the new ROFCO Removable Disc Orifice Plate. Like a safety razor in which you simply slip in a sharp blade instead of discarding the whole assembly, you can now renew the orifice without discarding the entire unit. This improvement offers many advantages. Instead of purchasing an entire unit, you need replace only the orifice insert which is a simple disc, which maintains a razor-like sharpness at the orifice opening. These inserts are easier and cheaper to transport. They occupy less space, having an all-flat surface ¼-inch thick. They are more convenient to keep in storage. There is the added advantage of simplicity in replacement. A considerable saving is effected in replacement costs by reason of the low price of the inserts. We have developed a carrier in which the orifice insert is placed and held by a sealing ring. Rofco Removable Disc Orifice Plates are made of stainless steel or cold-rolled steel, Cadmium-plated. Your old plates can be remachined by us to fit the new inserts. Send coupon for details if you want to start saving money for your company.

Robinson
ORIFICE FITTING COMPANY

1435 Santa Fe Ave.,
Los Angeles, Calif., U. S. A.

Distributors:
THE FOXBORO COMPANY—Foxboro, Mass.
Chicago Dallas Houston Los Angeles, Pittsburgh Tulsa
WESTCOTT & GREIS, Inc.
Dallas Houston Los Angeles Tulsa

English Distributors:
WALKER, CROSWELLER & COMPANY
54-58 Queen Elizabeth Street
London, S. E. No. 1

Canadian Distributors:
PEACOCK BROTHERS, Limited
Montreal-Calgary-Winnipeg

Engineers . . . . . **MAIL THIS COUPON!**

REQUEST FOR NEW ORIFICE DATA

ROBINSON ORIFICE FITTING CO.
Santa Fe Ave., Los Angeles, Calif.

Send Catalog and new Data.

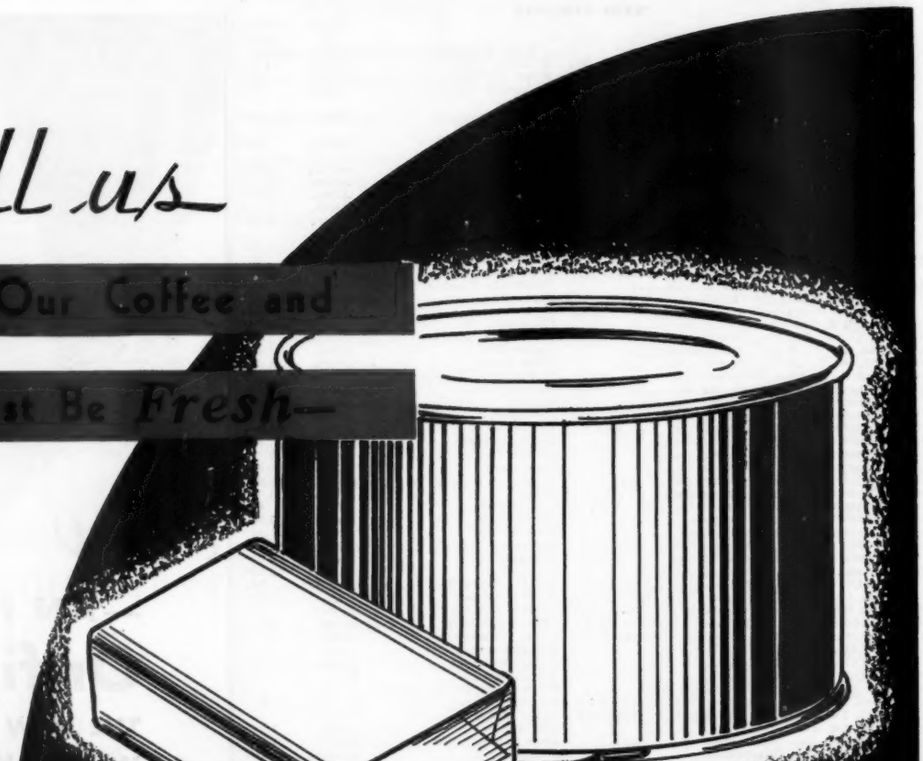
Name.....

Address.....

City..... *State*.....

They tell us

« « « That Our Coffee and Cigarettes Must Be *Fresh*—



How about OUR TRADE NEWS?

We are living in a "split-second" age and everyone agrees that speed is a primary requisite in pleasing the public. Coffee that is as much as ten days old, we are told, has lost more than 50% of its flavor—cigarettes are carefully sealed to protect them from moisture so that we may have them in what might be termed, perfect condition.

The reading habits of people follow closely, their buying habits where taste and enjoyment are concerned. The executive and operating man does not care to wait thirty days or more to know what has happened in his particular field. While developments of great importance in the petroleum industry are flashed across the country by radio, telegraph or telephone, the details and interpretation of these important happenings are looked for in their favorite weekly publication. Through years of experience the successful oil man has learned that *all* news and important technical development are covered weekly in The OIL and GAS JOURNAL, which employs the largest news gathering and technically trained editorial staff in the trade publication field. It publishes more news and educational material than any other petroleum trade publication.

It is, therefore, significant that The Oil and Gas Journal offers to its advertisers, space at the lowest rate per thousand readers, available in this industry.

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

TULSA, OKLA.

Advertising Representatives

C. L. CAIN
Room 412-415 Lexington Ave.,
New York, N. Y.

HOWARD MARKT
1105 Leader Bldg.
Cleveland, Ohio

C. R. FARMER
Room 1416, 6 N. Michigan Blvd.
Chicago, Ill.

R. P. (Salty) CLARK
114 West Second St.
Tulsa, Okla.

Bids Submitted for Sabine River Bed

Injunction on Order to Pipe Line Company on Excess Oil. Daily Allowable Now 59 Bbls. Over 150 Locations Made During the Week

By L. E. Bredberg

DALLAS, Tex., May 16.—Thirty-five independent operators and companies submitted bids today on eight tracts of the Sabine River bed in Gregg County, which the Board for Mineral Development of Texas submitted for lease by bid. These tracts are all located within the producing area of the county, but the two tracts on the west, in the water area, and one tract on the east are the least desired. No cash was offered in any of the bids; they were all bonus bids. Tract No. 7, which lies in a higher pressure area, appeared as the best of the eight tracts, as bidding on this tract was heavier than on the others; one company, the Blue Star Oil Corp. of Longview, offering the State 56 per cent of the oil and gas produced while flowing and 38 per cent when the lease falls off production and is put on the pump, and an alternate bid of 48 per cent of production for life of the wells.

These tracts were expected to be bid highest on by offset lease holders along the river, and the oil sold "in place," thereby saving river bed drilling and probable pollution of the water, but with bids coming in as they are, outside companies will no doubt win several of the tracts, and wells will be drilled in the bed. However, the winning bidders may later sell to offset lease holders, thereby saving expense of producing the river bed tracts and preventing river bed drilling.

Injunction Proceedings

Another restraining order, of a different type than any heretofore sought in East Texas, was granted this week by Judge Charles Wheeler, preventing the Atlas Pipe Line Co. of Shreveport from taking oil in excess of the allowable set by the Railroad Commission for the field. This was issued in response to suit filed by Attorney General Allred for penalties and cancellation of permit of the company.

The petition of Mr. Allred charged the company with violation of the law prohibiting pipe line companies from transporting oil produced in excess of the commission's orders. He stated that this was a new approach to the problem of preventing excess production in the field. The company was alleged to have taken 70,000 bbls. of excess oil from two different companies, and an undesignated amount from four other leases in the district. The Railroad Commission furnished evidence of this excess, and requested filing of the suit.

The petition seeks penalties from $100 to $1,000 daily; cancellation of permit of the company to do business in Texas, and permanent injunction restraining it from doing business in the State.

However, today, Federal Judge Randolph Bryant of Tyler, Tex., issued to the Atlas Pipe Line Co. a temporary injunction restraining the Railroad Commission from interfering with the lawful conduct of the company's business.

Allowable Reduced

Daily allowable per well was to be cut back to 59 bbls. today, according to previous orders issued by the Railroad Commission. There were in the neighborhood of 5,400 wells in the district last week, with 149 completed this week, making a total of approximately 5,550 producers, which, if all were producing their daily allowable, would make a total of 327,450 bbls. per day, or above the maximum of 325,000 set for the field. Regardless of the purchasing companies taking from storage in the district, the daily per well allowable is expected to be cut still further. One producing and purchasing company, which formerly voluntarily curtailed its own production and cut its purchases below the allowable set by the commission, and which is ahead of its schedule in regard to drilling, considering acreage held by it and other major companies, is expected to adopt another voluntary curtailment of its production and amount of oil taken from wells to which it is connected. Other companies will no doubt follow the lead if this company so acts. However, the present increased and growing consumption of gasoline should be able to compensate for the 2,000 or 4,000 bbls. which may be produced in the field above the set allowable, and a more elastic allowable could no doubt be made without affecting the market. Takings have been curtailed in other fields in the State, which should also aid the East Texas situation, and give more leeway to allowing more production in East Texas under present conditions.

Drilling Operations

The tables have turned in regard to drilling up leases in the district. Previously the small lease holders and independents and smaller companies have done the heaviest drilling, but the majority of these leases have been drilled up, and now the major companies are doing the most drilling. The majors have around 450 active operations in the field, while independents and smaller companies have around 340 at the present time.

However, the independents have drilled on many small leases, their leases averaging 11.30 acres per well, whereas the majors have not drilled correspondingly, and have 25.30 acres per well, giving leeway now to more drilling on their leases. Figuring the two percentages of number of acres per well gives an average of 18.30 acres per well for majors and independents in the field. This average will probably be brought down to around 10 acres per well before the field is completely drilled up, showing the amount of drilling which the majors still have to do before they have completed drilling their leases, and have brought down their average per well basis to near the level of the independents.

The larger lease holders in the district have a total of around 78,870 proven acres in the field, while the smaller lease owners have around 25,140 acres, the former having in the neighborhood of 3,240 producers while the latter have 2,310 producers. Total production of the field is 153,000,000 bbls., allowing at least 2,500,000 bbls. for by-passed and stolen oil.

Daily average distribution for the week ending May 9 was 343,831 bbls.; daily average production, 331,883 bbls.; daily average from storage, 11.948 bbls.; total oil run by main lines, 323,837 bbls.; to local refineries, 19,551 bbls.; by tank cars, 443 bbls.

New Locations

There were 154 locations made in the district this week, a gain over the past week. Completions fell from 151 of the past week to 149 this week. No cessation in drilling is now expected unless heavy rains interfere with activities, and the field will no doubt be practically drilled up before activities slow down, however many wells it will take to complete the drilling of the field.

The field is considered defined so far as oil production is concerned, with a possible short extension to Cherokee County yet to be made, but the gas area in the southern end of the field may be extended indefinitely, although one geologist who owns a gas producer in that part of the field considers that area good for only another mile extension to the south before that edge of the field is also terminated.

Wemack Oil Co.'s No. 1 Arnold in the William Christian Survey, on the extreme southern end of the field, is erecting a stub derrick preparatory to cleaning out the hole after the former derrick was blown down, breaking off part of the connections, allowing the well to blow wild and then going dead. It is a 35,000,000-foot gasser, the second largest instead of the largest, as mentioned in this column last week. Peyton Brothers' No. 1 Perry, the first dry gasser drilled, and in this area, was the largest well. It gauged over 59,000,000 feet of gas.

Wildcat Location

Only one wildcat location was staked in East Texas this week, William A. Stone starting this test on the J. T. Perkins farm in the Thomas Stanford Survey, 8 miles south of Ponta in Cherokee County. A rig has been built on the location.

Mustang Oil Co.'s No. 1 Decker in the F. W. Fulgham Survey, 3 miles south of Maybelle, Cherokee County, is drilling below 4,080 feet, appearing as a dry hole. Surface elevation is 341 feet making subsea datum at present time 3,739 feet.

Buchanan and Burkhalter's No. 1 Staggers in the J. D. Nelson Survey, Morris County wildcat, is also appearing as a dry hole after bailing down 2,500 feet with no showing of oil or gas. It is still bailing. Total depth of the hole is reported at 3,550 feet.

Pink Chandler of Sulphur Springs has assembled a 7,000-acre block near Campbell in east central part of Delta County, lying in the S. G. Wright, S. Joseph, P. T. Woodbury, R. Brown, Mary Robinson, Patrick Sullivan, William Downing and adjoining surveys. He has also assembled 5,000 acres near the town of Quinlan in the south central part of the county, centering in the M. Latham, W. T. Harris, O. N. Robertson and G. W. Manning Surveys. Both blocks were taken on drilling contracts, which mean two more wildcat tests for East Texas in the near future. Mr. Chandler is also assembling a block near Celeste in the northwestern corner of the county.

An operator from Pampa, Tex., named Salter, is working on a 6,000-acre block centering about W. B. McNutt Survey, Abstract No. 418, 2 miles northeast of Mineola in Wood County. The McCollum Exploration Co. of Houston is working with seismograph along the Mineola-Alba Highway in Wood County.

Wood County Oil & Gas Co. is preparing to start its test on the Davis land, 2½ miles south of Yantis. The company has only a small lease in this area, 360 acres.

Grand Jury Inquiry

The grand jury investigations which have been held at Longview in Gregg County during the past three weeks dealing with by-passing and alleged theft of oil, have disclosed four different methods of evading the proration in the district, namely: (1) The bypass method. (2) Bleeder—where oil is taken from storage tanks through lines intended to drain basic sediment from the tanks. (3) Tank wagons—running into tank wagons then hauling it to local refineries. (4) Tank car methods. All four methods have been used in the district.

The grand jury returned 158 more indictments May 16. Two hundred and thirteen indictments were returned against 18 men in similar cases last month.

Sinclair Prairie Oil Co.'s No. 1 Tipps in the northeast corner of the P. F. Poindexter Survey, southern Rusk County, is an interesting test due to the fact that it is approximately midway between production on the east and Clopton's No. 1 Pace dry hole on the west. It is also approximately 1½ miles south of The Texas Company's No. 1 Kersh producer. The Clopton dry hole is a southwestern marker of the Joiner area, and is located just over the Rusk County line into Cherokee.

Van Field

There were four producers completed in the Van Field during the week, and three locations made, with eight other active operations under way.

COMPLETIONS IN EAST TEXAS

Cherokee County

Harper and Perkins' No. 1 J. T. Lowery, dry and abandoned, total depth 3,366 feet. Mid-Kansas Oil & Gas Co.'s No. 1 H. D. Kelley, top sand 3,665 feet, initial production 150 bbls. per hour through open 2½-inch tubing on 2-inch lead, total depth 3,671 feet.

North Gregg County

Abernathy and Kirkpatrick's No. 1-B R. M. Woods, top sand 3,612 feet, initial production 61 bbls. per day through various chokes, total depth 3,638 feet. Alemeta Oil Corp.'s No. 2 Doby, top sand 3,693 feet, initial production 100 bbls. per hour through open tubing, total depth 3,706 feet. Amerada Petroleum Corp.'s No. 6 Bumpass, top sand 3,558 feet, initial production 75 bbls. per hour through three-fourths inch tubing choke, total depth 3,588 feet; No. 4 Continental State Bank, top sand 3,545 feet, initial production 72 bbls. per hour through three-fourths inch tubing choke, total depth 3,575 feet; No. 4 Allen Tooke, top sand 3,500 feet, initial production 33 bbls. in 15 minutes through 1-inch tubing choke, total depth 3,528 feet; No. 6 J. M. Tuttle, top sand 3,557 feet, initial production 18 bbls. in 15 minutes through three-fourths inch tubing choke, total depth 3,585 feet. Atlantic and Wadley's No. 3 J. Bender, top sand 3,575 feet, initial production 22 bbls. per hour through tapered tubing, total depth 3,612 feet. Atlantic Oil & Production Co.'s No. 3 T. B. Harris, top sand 3,462 feet, initial production 22 bbls. per hour through tapered tubing, total depth 3,498 feet; No. 6 J. M. Tuttle, top sand 3,569 feet, initial production 22 bbls. per hour through tapered tubing, total depth 3,625 feet; No. 7 J. Wilson, top sand 3,529 feet, initial production 21 bbls. per hour through tapered tubing, total depth 3,567 feet.

Barnsdall Oil Co.'s No. 6 McGrede, top sand 3,620 feet, initial production 61 bbls. per day through various chokes, total depth 3,658 feet. Bass and Dillard's No. 1 S. Christian, top sand 3,634 feet, initial production 61 bbls. per day through various chokes, total depth 3,670 feet. Beard and others' No. 2 M. F. Farrell, top sand 3,626 feet, initial production 61 bbls. per day through various chokes, total depth 3,638 feet. Jim Cloud, Inc.'s No. 2 B. C. Christian, top sand 3,632 feet, initial production 61 bbls. in 30 minutes through open tubing, total depth 3,672 feet. Deep Rock Oil Co.'s No. 4 H. Pritchard, top sand 3,504 feet, initial production 29 bbls. in 30 minutes through open tubing, total depth 3,564 feet.

Empire Gas & Fuel Oil Co.'s No. 5 J. Bender, top sand 3,572 feet, initial production 42 bbls. in 15 minutes through open tubing, total depth 3,650 feet; No. 8 L. A. Jeter, top sand 3,551 feet, initial production 37 bbls. in 15 minutes through open tubing, total depth 3,604 feet; No. 3 J. L. Spurrier, top sand 3,554 feet, initial production 42 bbls. in 15 minutes through open tubing, total depth 3,635 feet. Fain and McGaha's No. 5 A. Tooke, top sand 3,576 feet, initial production 61 bbls. per day through various chokes, total depth 3,626 feet. Fritts and others' No. 2 Emmett E. Anderson, top sand

Why we are selling
PREFORMED WIRE ROPE
in ever increasing quantities

During our 86 years in the wire rope business, we have developed many types of wire rope in order to meet severe and exacting demands of wire-rope-using equipment and machinery.

●

But prior to the perfection of the preforming process, there had been no basic improvement in wire rope. So long as wires and strands were forced to hold their helical shapes against a constant tendency to straighten out, there was internal stress—which in combination with normal bending stresses—was decidedly destructive.

●

Internal stress is eliminated in LAY-SET by preforming the strands and wires to the exact helical shape they assume in the finished structure. Strands and wires lie naturally in position, giving perfect strand balance—which greatly reduces probabilities of "high" and "low-stranding." Slippage on the drum is lessened, which is another of the many reasons for the longer service and better efficiency of LAY-SET Preformed Wire Rope.

●

While you may be receiving better satisfaction from Hazard non-preformed wire rope than from other brands of wire rope, you will obtain *still greater* service from LAY-SET Preformed Wire Rope of the same grade and construction.

HAZARD WIRE ROPE COMPANY
WILKES-BARRE, PENNSYLVANIA

New York Pittsburgh Chicago Denver Fort Worth Los Angeles
San Francisco Birmingham Philadelphia Tacoma

MAIL COUPON TODAY FOR YOUR COPY . . .

An interesting booklet which explains and illustrates 12 advantages of LAY-SET Preformed Wire Rope. Every wire rope buyer should read this booklet before ordering another foot of wire rope.

HAZARD WIRE ROPE COMPANY
Wilkes-Barre, Pennsylvania

Send me by return mail your booklet entitled, "12 Reasons Why You Save Money with Lay-Set Preformed Wire Rope."

Name _____
Address _____
Company _____

MAIL TODAY

(Write on margin type of service)

LAY-SET SAVES YOU MONEY

BECAUSE IT GIVES MUCH LONGER SERVICE

●

LAY-SET gives service which averages between 30% and 300% longer than given by non-preformed rope of the same grade and construction, the variation depending entirely on the nature of the work and type of equipment.

NOTE THE HELICAL SHAPE OF THE REMOVED STRAND

This illustration is made from an honest unretouched photograph. Note how you can remove a strand. You can turn it end for end and fit it back into position, which demonstrates the perfect balance of LAY-SET strands.

●

Note also that the ends need no seizing—there is no internal stress. Strands and wires lie naturally in position, free and relaxed.

3,597 feet, initial production 61 bbls. per day through various chokes, total depth 3,662 feet.

M. E. Gaskill and others' No. 3 Sam Key, top sand 3,617 feet, initial production 18 bbls. in one-quarter hour through three-quarters-inch tubing choke, total depth 3,645 feet. Gilcrease Oil Co.'s No. 1-B A. Tooke, top sand 3,520 feet, initial production 61 bbls. per day through various chokes, total depth 3,555 feet. Gulf Production Co.'s No. 9 J. C. Judge, top sand 3,495 feet, initial production 90 bbls. per hour through three-quarters-inch tubing choke, total depth 3,523 feet; No. 3 F. M. Fonville, top sand 3,513 feet, initial production 72 bbls. per hour through three-quarters-inch tubing choke, total depth 3,537 feet.

D. L. Hoffman's No. 2 W. M. Kellum, top sand 3,535 feet, initial production 45 bbls. in one-half hour through three-quarters-inch tubing choke, total depth 3,554 feet. Humble Oil & Refining Co.'s No. 6 H. M. Lawrence, top sand 3,633 feet, initial production 73 bbls. per hour through three-quarters-inch tubing choke, total depth 3,666 feet; No. 8 W. R. Hughes, top sand 3,659 feet, initial production 89 bbls. per hour through three-quarters-inch tubing choke, total depth 3,666 feet. Lucey Petroleum Corp.'s No. 3 R. Christian, top sand 3,572 feet, initial production 127 bbls. per hour through 1-inch tubing choke, total depth 3,616 feet.

Magnolia Petroleum Co.'s No. 1 Beaver-Goolsby, top sand 3,512 feet initial production 128 bbls. per hour through open tubing, total depth 3 532 feet; No. 4 E. H. Brawley, top sand 3,497 feet, initial production 152 bbls. per hour through 2-inch tubing choke, total depth 3,514 feet; No. 2 Clem Jones, top sand 3,673 feet, initial production 176 bbls. per hour through 2-inch tubing choke, total depth 3,688 feet; No. 5 H. L. Foster, top sand 3,495 feet, initial production 136 bbls. per hour through open tubing, total depth 3,526 feet; No. 7 B. E. Rodden, top sand 3,580 feet, initial production 176 bbls. per hour through open tubing, total depth 3,648 feet. J. H. Massey and others' No. 3 J. W. Orr, top sand 3,583 feet, initial production 67 bbls. per day through various chokes, total depth 3,648 feet. Miller and Lacy's No. 1 W. R. Nicholson, top sand 3,647 feet, initial production 61 bbls. per day through various chokes, total depth 3,664 feet. O. G. Murphy's No. 2 Doby, top sand 3,520 feet, initial production 61 bbls. per day through various chokes, total depth 3,574 feet.

Pilot Oil Co.'s No. 2 Magrill, top sand 3,663 feet, initial production 31 bbls. in one-half hour through 1-inch tubing choke, total depth 3,690 feet. Roeser & Pendleton's No. 4 A. Christian, top sand 3,578 feet, initial production 61 bbls. in 33 minutes through 2½-inch tubing, total depth 3,614 feet; No. 3-A W. R Nicholson, top sand 3,650 feet, initial production 61 bbls. in one-half hour through 2-inch tubing choke, total depth 3,682 feet.

Selby and Lewis' No. 8 L. C. Ingram, top sand 3,520 feet, initial production 27 bbls. in one-half hour through 1-inch tubing choke, total depth 3,544 feet. Shell Petroleum Corp.'s No. 1 S. C. Fishburn, top sand 3,504 feet, initial production 7½ bbls. in one-quarter hour through tapered tubing, total depth 3,535 feet; No. 2 Boston Moore, top sand 3,510 feet, initial production 30 bbls. per hour through tapered tubing, total depth 3,579 feet; No. 7 J. Moore, top sand 3,548 feet, initial production 10 bbls. in one-quarter hour through tapered tubing, total depth 3,571 feet. C. F. Smith's No. 2 G. Jones, top sand 3,523 feet, initial production 61 bbls. per day through various chokes, total depth 3,570 feet. Stanolind and Simms and others' No. 5 H. Key, top sand 3,514 feet, initial production 53 bbls. in one-quarter hour through open tubing, total depth 3,603 feet. Sun Oil Co.'s No. 3 Reppon, top sand 3,600 feet, initial production 40 bbls. per hour through tapered tubing, total depth 3,649 feet. Superior Oil Co.'s No. 4-A H. Pritchard, top sand 3,512 feet, initial production 34 bbls. in one-quarter hour through 1-inch tubing choke, total depth 3,563 feet. Yount Lee Oil Co.'s No. 4 J. C. McGrede, top sand 3,521 feet, initial production 78 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,541 feet.

South Gregg County

Amerada Petroleum Corp.'s No. 3 Jenkins, top sand 3,510 feet, initial production 70 bbls. per hour through three-quarters-inch tubing choke, total depth 3,530 feet. Atlantic-Byrd-Frost's No. 6 M. B. Hughey, top sand 3,578 feet, initial production 22 bbls. per hour through open tapered tubing, total depth 3,606 feet. D. D. D. Oil Co.'s No. 1 Adkins, top sand 3,665 feet, initial production 60 bbls. in one-half hour through open 2-inch tubing choke, total depth 3,671 feet. Danciger and Manahan's No. 2 McNeely, top sand 3,600 feet, initial production 70 bbls. per hour through open 2½-inch tubing choke, total depth 3,615 feet.

Moore-Zilkey-McMahon and McCulloch's No. 1 Coleman-Strawn, top sand 3,765 feet, initial production 40 bbls. in 25 minutes through three-quarters-inch tubing choke, total depth 3,777 feet. Elzy Drilling Co.'s No. 1 McNeeley, top sand 3,719 feet, initial production 61 bbls. per day through pinched tubing, total depth 3,721 feet. Empire Gas & Fuel Oil Co.'s No. 1 Walker, top sand 3,626 feet, initial production 30 bbls. in one-quarter hour through one-half-inch choke on 2½-inch tubing, total depth 3,631 feet. Gulf Production Co.'s No. 5 M. T. Cole, top sand 3,527 feet, initial production 70 bbls. per hour through three-quarters-inch tubing choke, total depth 3,534 feet; No. 8 W. Holt, top sand 3,577 feet, initial production 75 bbls. per hour through three-quarters-inch tubing choke, total depth 3,592 feet; No. 9 W. Holt, top sand 3,575 feet, initial production 60 bbls. per hour through three-quarters-inch tubing choke, total depth 3,583 feet; No. 2 T. C. Reeves, top sand 3,536 feet, initial production 82 bbls. per hour through three-quarters-inch tubing choke, total depth 3,546 feet; No. 3 T. C. Reeves, top sand 3,585 feet, initial production 92 bbls. per hour through three-quarters-inch tubing choke, total depth 3,593 feet; No. 3 C. Strong, top sand 3,704 feet, initial production 88 bbls. per hour through three-quarters-inch tubing choke, total depth 3,710 feet.

C. C. Julian and Harold's No. 3 England, top sand 3,548 feet, initial production 61 bbls. per day pinched through tubing, total depth 3,624 feet. Petroleum Finance Corp.'s No. 4 Lacy, top sand 3,565 feet, initial production 120 bbls. per hour through three-quarters-inch tubing choke, total depth 3,576 feet. Quad Corp.'s No. 2-B Duncan, top sand 3,627 feet, initial production 61 bbls. per day through tubing, total depth 3,633 feet. Shell Petroleum Corp.'s No. 3-B Bivens, top sand 3,623 feet, initial production 20 bbls. per hour through tapered tubing, total depth 3,638 feet. Victor C. Smith's No. 1 Knowles, top sand 3,545 feet, initial production 61 bbls. per day pinched through tubing, total depth 3,587 feet.

Sun Oil Co.'s No. 3 W. Penticost, top sand 3,563 feet, initial production 61 bbls. per day pinched through tubing, total depth 3,614 feet; No. 5 Grant Reece, top sand 3,698 feet, initial production 61 bbls. per day through pinched tubing, total depth 3,701 feet. M. E. Tabor's No. 1 North Chapel School, top sand 3,733 feet, initial production 61 bbls. per day pinched through tubing, total depth 3,737 feet. Tidal Oil Co.'s No. 7 Bivens, top sand 3,618 feet, initial production 20 bbls. in five minutes through open tubing, total depth 3,623 feet; No. 4 W. D. Lacy, top sand 3,540 feet, initial production 7,000 bbls. per day open through casing and tubing, based on five-minute gauge, total depth 3,562 feet. Turnbow and others' No. 1 Rodger Lacy, top sand 3,540 feet, initial production 30 bbls. in 40 minutes through open tubing, total depth 3,600 feet.

Blackwell Oil & Gas Co.'s No. 5 W. P. Moore, top sand 3,628 feet, initial production 120 bbls. per hour through open tubing, total depth 3,645 feet. Casey Oil Co.'s No. 1 E. B. Alford, junked and abandoned, total depth 2,300 feet. Jim Cloud.'s No. 3-A Samp Stone, top sand 3,717 feet, initial production 35 bbls. in 15 minutes through open tubing, total depth 3,750 feet. O. R. Cooper's No. 1 E. E. Moore, top sand 3,602 feet, initial production 40 bbls. per hour through open 2-inch tubing choke, total depth 3,652 feet. Devonian and Barnsdall's No. 3 J. B. Milstead, top sand 3,656 feet, initial production 40 bbls. in 30 minutes through open 2-inch tubing choke, total depth 3,731 feet. Everts Drilling Co.'s No. 1 Joe Lee, top sand 3,729 feet, initial production 75 bbls. per hour through three-fourths inch tubing choke, total depth 3,732 feet.

Golding and Murchinson's No. 7 Fair, top sand 3,615 feet, initial production 70 bbls. per hour through three-fourths inch tubing choke, total depth 3,632 feet. Gulf Production Co.'s No. 7 E. E. Thrash, top sand 3,724 feet, initial production 70 bbls. per hour through three-fourths inch tubing choke, total depth 3,742 feet. Golding and Murchinson's No. 4 Ida L. Kinney, location abandoned. Herd and Rodgerson's No. 1 E. P. William, junked and abandoned, total depth 3,100 feet.

Humble Oil & Refining Co.'s No. 2 E. S. Holt, top sand 3,768 feet, initial production 41 bbls. in 30 minutes through three-fourths inch tubing choke, total depth 3,812 feet; No. 2 E. W. Naulls, top sand 3,574 feet, initial production 32 bbls. per hour through three-fourths inch tubing choke, total depth 3,692 feet; No. 11 W. L. Price, top sand 3,725 feet, initial production 36 bbls. in 30 minutes through three-fourths inch tubing choke, total depth 3,780 feet; No. 13 W. L. Price, top sand 3,661 feet, initial production 48 bbls. in 30 minutes through three-fourths inch tubing choke, total depth 3,766 feet; No. 1-B Virginia Turner, top sand 3,718 feet, initial production 51 bbls. in 30 minutes through three-fourths inch tubing choke, total depth 3,738 feet; No. 10 J. E. Wheelis, top sand 3,744 feet, initial production 44 bbls. in 30 minutes through three-fourths inch tubing choke, total depth 3,749 feet; No. 2 C. W. Wilson, top sand 3,597 feet, initial production 49 bbls. per hour through three-fourths inch tubing choke, total depth 3,716 feet. H. L. Hunt's No. 1-E Bradford, top sand 3,569 feet, initial production 61 bbls. in four hours' pumping, total depth 3,625 feet; No. 6-A H. C. Maxwell, top sand 3,735 feet, initial production 45 bbls. in 30 minutes through open 2-inch tubing, total depth 3,788 feet; No. 3 V. E. Reid, top sand 3,605 feet, initial production 40 bbls. per hour through open 2-inch tubing, total depth 3,729 feet.

McPhail and Kimbrough's No. 1 E. A. Thrash, top sand 3,645 feet, initial production 57 bbls. per hour through open tubing, total depth 3,683 feet. M. B. G. Oil Co.'s No. 3 H. L. Griffin, top sand 3,611 feet, initial production 76 bbls. per hour through three-fourths inch tubing choke, total depth 3,685 feet. Mack Oil Corp.'s No. 1 S. H. Arnold, top sand 3,677 feet, initial production 35,000,000 feet of gas, total depth 3,687 feet. Mid-Kansas Oil & Gas Co.'s No. 10 W. M. Cross, top sand 3,632 feet, initial production 100 bbls. per hour through open tubing, total depth 3,662 feet; No. 3 Kangerga, top sand 3,594 feet, initial production 60 bbls. per hour through open 2½-inch tubing choke, total depth 3,630 feet; No. 1 R. M. Weaver, top sand 3,598 feet, initial production 60 bbls. per hour through 2½-inch tubing, total depth 3,626 feet. J. C. Prine's No. 1 P. C. Warren, top sand 3,754 feet, initial production 60 bbls. per hour through 2-inch tubing choke, total depth 3,757 feet.

Jasper County

Rio Neches Oil Co.'s No. 1 Boykin, dry and abandoned, total depth 1,400 feet.

North Rusk County

E. L. Chapman's No. 2 William Futch, top sand 3,722 feet, initial production 61 bbls. per day pinched through tubing, total depth 3,725 feet. Gulf Production Co.'s No. 5 C. E. Christian, top sand 3,742 feet, initial production 75 bbls. per hour through three-quarters-inch tubing choke, total depth 3,761 feet. Humble Oil & Refining Co.'s No. 51 Crim, top sand 3,642 feet, initial production 45 bbls. in one-half hour through three-quarters-inch tubing choke, total depth 3,677 feet. Louisiana Oil & Refining Co.'s No. 3 W. N. Jernigan, top sand 3,608 feet, initial production 40 bbls. per hour through open tubing, total depth 3,635 feet. Murray and Goode's No. 1 Leath, dry and abandoned, total depth 3,645 feet. Shell Petroleum Corp.'s No. 5 D. Wills, top sand 3,633 feet, initial production 18 bbls. in one-half hour through tapered tubing, total depth 3,636 feet.

Rusk County

Harris and Russell's No. 1 T. W. Harris, abandoned.

D. C. Roberts' No. 2 E. B. Alford, top sand 3,650 feet, initial production 6 bbls. per hour through open 2-inch tubing, total depth 3,730 feet. H. G. Sampson's No. 1 Goforth, top sand 3,827 feet, initial production 60 bbls. in one-half hour through open 2-inch tubing, total depth 3,829 feet. Sinclair Prairie Oil Co.'s No. 24 Kinney, top sand 3,674 feet, initial production 90 bbls. per hour through open tubing, total depth 3,686 feet; No. 3 Ledbetter, top sand 3,614 feet, initial production 174 bbls. per hour through open tubing, total depth 3,632 feet. Stanolind-Pure Oil Co.'s No. 3 R. A. Moore, top sand 3,638 feet, initial production 88 bbls. per hour through open 2½-inch tubing choke, total depth 3,640 feet. Stanolind and Pure Oil Co.'s No. 5 W. H. Siler, top sand 3,589 feet, initial production 40 bbls. in one-fourth hour through 2½-inch tubing, total depth 3,614 feet. Stedham and Thrasher's No. 1 W. P. Keeling, top sand 3,718 feet, initial production 15 bbls. in 5 minutes through open tubing, total depth 3,750 feet.

Tauber and McKee's No. 2 Tolliver, top sand 3,660 feet, initial production 50 bbls. per hour through 2½-inch tub-

(Continued on Page 77)

EAST AND EAST CENTRAL TEXAS WILDCATS

Week Ending May 16

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
Roeser and Pendleton's No. 1 M. A. Davy, 460 ft. from N line and center of E and W lines of tract and survey, P. G. Adams Sur.	Derrick.
C. R. Wilmuth et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S½ of 129-ac. tract, M. Main Sur.	T.D. 1,538 ft.

ANGELINA COUNTY

Helburt et al's No. 1 Long Bell Lumber Co., 160 ft. from S line and 200 ft. from E line of Sec. 9, H.&T.B. Sur.	Location.

BOWIE COUNTY

Burnham-Robertson and Greer's No. 1 F. O. Weiss, 850 ft. from N line and 200 ft. from W line of B. H. Williams 50-ac. tract, Jessie Dean Sur.	Drlg. 2,604 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, H. Kimble Sur.	S.D. 1,000 ft.
Mid-Kansas Oil & Gas Co.'s No. 9 M. M. Cross, 1,540 ft. from N line of Cherokee County and 537 ft. from W line of lease, Fowlks Sur.	T.D. 3,678 ft.
Mustang Oil Co.'s No. 1 Decker and Whiteman, east side of W 75 acres of S 150 acres of survey, 3 miles S of Maydelle, F. W. Fulgham Sur.	Drlg. 4,078 ft.
William A. Stone's No. 1 J. T. Perkins, 200 ft. from NW cor. of lease, Thomas Stanford Sur., 3 miles S of Ponta	Rig up.
Dr. Tubbs et al's No. 1 J. H. Sharp, 330 ft. from N line and 71 ft. from E and W lines of 3¼-ac. tract, M. De Los Santos Coy Sur.	Set surface csg.
Wilson & Stubbs' No. 1 L. Robert, 450 ft. from S and 150 ft. from W line of lease, J. B. Wolfin Sur.	S.D. 2,035 ft.; will skid derrick.

(Continued on Page 77)

Andrews County Production Extended

Wildcat Test in Borden County. Good Well in Southern Ward County. Five Locations in Ranger Area and Three in Panhandle

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., May 16.—Fuhrman Petroleum Co.'s No. 1 Boner, Section 24, Block A-43, Public School Lands Survey, Andrews County, has been completed for an estimated 400 to 500-bbl. well, extending production 1 mile in this area which was opened by the same company's No. 1 Ford 18 months ago. The well topped the first pay at 4,254 feet and logged an increase from 4,310-15 feet. Total depth of the hole is 4,541 feet, and surface elevation is 3,196 feet. The well is now flowing into pits and waiting on storage. A 390-quart shot was given it from 4,220-4,333 feet to disintegrate the lime and increase production in the well.

The second well for this area is 1 mile southeast of the discovery, which has been flowing into tanks since its discovery, and without pipe line outlet. It is not probable that a line will be laid into the area until more drilling is done and other wells extend and prove the area still further for production. The nearest production to the two Fuhrman wells is the Deep Rock area approximately 5 miles to the north. Two small producers are located in the Deep Rock area. The Atlantic Pipe Line Co. has a line running in the vicinity of the two areas, from the Hobbs Pool, New Mexico, to its tank farm at Midland, but has never connected with the Deep Rock or Fuhrman wells.

The Boner well is making around 5,000,000 feet of gas with the oil. This second well makes the area considerably more valuable than formerly calculated, but due to hard drilling, depth of the wells and lack of pipe line outlet, the area is not expected to draw much attention under prevailing conditions of the industry. The low gravity of the oil, 24.0 degrees, also detracts from the area. Bottom hole water in the discovery well caused it to be plugged back before completing, but water did not show up in the second well.

Test in Borden County

Borden County, extreme wildcat territory, is to receive a test which will be drilled jointly by the Westyde Investment Co. of Fort Worth, Shell Petroleum Corp. and Tidal Oil Co. The test will be located on the Looney ranch in Section 15, Block 33, Township 4n, T.&P. Survey, and will be started near the first of June and drilled to 380 feet in the big lime unless oil or gas is found in commercial quantities at a lesser depth. Magnolia Petroleum Co., which drilled a test on the Jetter ranch in Section 1, Block 34, Township 4n, Dawson County, west of the Looney ranch, encountered showings of oil in two horizons when it was drilled, and going to 380 feet in the big lime in the Looney test will test both of the horizons found in the Jetter test which was abandoned.

The Continental Oil Co., Atlantic Oil Producing Co., Phillips Petroleum Co., Empire Gas & Fuel Co., The Texas Company, Gulf Production Co., Producers & Refiners Corp. and Westyde Investment Co. hold the acreage around the Looney test, which is on a block which is located on both a subsurface and geophysical high. It will be the first test drilled in this county in a long time, and an interesting one due to the geology of the area.

Ward County

Eastland Oil Co. and others' No. 1 M. Weiss in Section 4, Block 34, H.&T.C. Survey, southern Ward County, has been brought in for the largest well in this part of the county, estimated good for 600 bbls. per day, flowing. Sand was topped in the well at 2,358 feet, and the well drilled 1 foot when tools were lost causing a fishing job at the present time. After tools are fished out it may prove to be a still better well than estimated at the present. However, wells are only allowed to produce 75 bbls. per day in the area. It offsets Stanolind Oil & Gas Co.'s No. 1 Weiss to the north. That well was completed for an initial production of 190 bbls. per day. The Wickett Refining Co. and Atlantic Pipe Line Co. are connected to wells in this area.

New Tests

Two new tests are to be drilled in this area immediately. They are Jack Leydecker and others on the Pecos Mercantile Co. land, location staked in Section 16, Block 34, and Texas Pacific Coal & Oil Co.'s No. 3 James in Section 5, Block 34. The latter is a southeast offset to a 60-bbl. producer owned by the same company.

Two other locations were staked in West Texas during the week, one in the Tankersley area, Irion County, and the other in the Toborg-Tippett shallow area, Pecos County.

Toborg-Tippett Pool

The Cardinal Oil Co., which owns the majority of production in the Toborg-Tippett Pool, has purchased a half interest and operating control in the Phillips Petroleum Co.'s block in the western part of Pecos County, centering in Block OW, T.&M. Survey. There are two small shallow producers in this area, which have never been given a pipe line outlet, and the new purchaser will lay approximately 11 miles of 2 or 2½-inch line from the two pumpers to a small loading rack on the Santa Fe Railroad at Fort Stockton. This line is to be in operation within 30 days.

This area was opened by the Phillips Petroleum Co.'s No. 1 Courtney (Pryor) in May, 1929, producing from a horizon logged from 1,345-75 feet. The well was later drilled to 4,576 feet but did not pick up another pay horizon. Gravity of the oil is 25.3.

The two pumpers in the area gauged 233 bbls. per day on a recent 10-day pumping test. Cardinal Oil Co. will drill on the block when the market improves. The oil is now worth 65 cents per barrel. It will be shipped to McCamey where it will be taken over by the Shell Pipe Line Co. This company purchases the Cardinal's production in the Toborg-Tippett Pool.

Glasscock County

Peck and Service's No. 1 Gillian in Section 21, Block 33, T.&P. Survey, has been abandoned at a total depth of 2,415 feet. It had a showing of oil at 2,310-15 feet and an increase in water at 2,400-10 feet, first water at 2,140-48 and 2,310-15 feet. It is located approximately midway between production on the northeast and the McDowell Pool on the southwest, Glasscock County.

Loving County

H. W. Martin has completed building rig on a wildcat test in the northwest corner of Section 30, Block B-29, 3 miles east of the nearest producer in the Wheat Pool, Loving County. Tennant's No. 1 R. Martin, small potential well which will extend the field approximately 1 mile south, is still shut down with 6⅝-inch casing frozen. Five and three-sixteenths inch casing may be run, and the well completed. It is estimated good for around 60 bbls. per day.

Five Completions

There were five completions in West Texas during the week; one in Tom Green County, a shallow test in the James Eldridge Survey No. 73, and drilled to 453 feet. One dry hole was abandoned in Glasscock County; one producer in the Toborg-Tippett Pool, Pecos County; one producer in the O'Brien area of northern Ward and one in the southern Ward County area.

Wildcatting activities have increased greatly during the past six weeks in the district and other tests may be expected to be spudded within the next few weeks in other areas which have long been considered good for production possibilities. Leasing and royalty buying has been stimulated tremendously by rumors and announcements of wildcat tests, and independents and companies alike have been buying in areas where acreage was relinquished during the past year to save paying rentals. Crockett, Reagan, Gaines, Ector, Sterling and Ward Counties have been the chief recipients of the wildcatting activities, and lease trading during the past three or four months, while some acreage has changed hands in other counties in the district, also.

Ranger District

Frank Aldrick and Herbert Oil Co.'s No. 1 Keeney, semiwildcat discovery of three weeks ago, 7½ miles northeast of Coleman in Coleman County, which is estimated good for 150 to 250 bbls. per day, is still without pipe line outlet, although the owners have been selling considerable oil to local refineries which have been hauling it in tank trucks. The owners of the well are now contemplating laying a small line from the well to a four-car loading rack which will be located on the Santa Fe Railroad at Coleman, and the oil shipped to Fort Worth. Gravity of the oil is 38.6. Top of the sand was logged at 1,810 feet and bottom of the hole is 1,815 feet in sand. It is located in the E. N. Eubanks Survey No. 270.

There were four locations staked in the district during the week, one in Brown, one in Coleman, one in Palo Pinto and one in Shackelford County. Eight tests were completed, the largest number, three in Shackelford County. Two were completed in Callahan, one in Coleman, one in Brown and one in Parker County.

Ungren and Frazier's No. 1 Jackson in Section 21, E.T.R.R. Survey, in the extreme northern part of Callahan County, and an extension well to production which is located 1,700 feet southeast, or a separate pool opener, is now flowing into three 100-bbl. tanks. Sand was topped in this well at 911 feet and drilled to 913 feet. Production from wells to the southeast is coming from a 1,300-foot pay horizon.

Stanolind Oil & Gas Co. has sold its Thornton lease in Jones County to Rhodes and Hyer for a reported consideration of $20,000 cash, including the equipment. There are three producers on the lease averaging a total of 25 bbls. per day.

Wichita Falls District

The Deep Oil Development Co. and others' No. 1 L. F. Wilson, Lease 5-A, the first deep producer to be completed in Archer County in the new pay horizon of the Strawn group, is pumping 101 bbls. settled production daily with but a small amount of water showing. Due to its being the first producer in this new pay horizon it is exceedingly interesting, and will lead to other deep drilling, as it has already done. It had an oil showing at 2,225-26 feet, oil sand from 2,226-40 and 2,247-49 feet, and made 700 bbls. daily at 2,218-49 feet. It passed up this good production to drill for a deeper pay. Another oil sand was logged from 2,285-87 feet, an oil showing logged at 3,480-85, 3,614-38, 4,930-45, 5,045-58, 5,058-65 and 5,175-77 feet. It was plugged back from 5,750 to 3,638 feet and completed at the latter depth.

Perkins and Cullum's No. 2 Abercrombie in Block 157, Archer County, offsetting a flowing well, appears as a dry hole. It topped the Gunsight lime at 1,187 feet, had saturated lime at 1,187-95 feet with a showing of oil from 1,203-10 and 1,210-17 feet, and a broken oil sand at 1,217-32 feet, the latter being the total depth of the hole. It may be drilled deeper. Elevation is 1,005 feet.

Fain & McGaha's No. 1-C fee in Block 2, League 3, northern Archer County, topped oil sand at 1,783 feet and appears likely to make a 1,500-foot southeastern extension to the newly opened pool in this area. Same company's No. 1 J. L. Jackson, a due north offset to the discovery well in Block 25, League 4, made 90 bbls. the first 16 hours on pump. It logged oil sand from 1,791-92 feet. Total depth is 1,792 feet.

Burns and Long's No. 1-A A. Pastusek in the northeast corner of Block 17, southwestern Archer County, was an apparent extension well to Moran Co.'s production in this area, but failed to make a producer and was abandoned.

Gilliland and Rosser are to drill No. 3 J. S. Walsh test in Section 2,417 in southwest Archer County, near the northeast edge of the Harmel Field. It is to be a Canyon series test with rotary tools, and to go to 2,350 feet.

E. N. Goodrich, of Fort Worth, and

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending May 16

ANDREWS COUNTY

Company, well, farm name, section and block—	Remarks—
Fuhrman Pet. Co.'s No. 1 Boner, 1,320 ft. from N and 440 ft. from W, Sec. 24, Blk. A-43, P.S.L.	T.D. 4,541 ft.; shot 390 qts. 4,220-4,430 ft.; est. 15 bbls. hr.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	S.D. 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	S.D. 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	S.D. 2,900 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 353, 7 miles south Alpine	S.D. 1,750 ft.

COCHRAN COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E, Sec. 163, T.&N.O. Sur.	S.D. 1,700 ft.; set 8-in. csg.

CRANE COUNTY

Continental Oil Co.'s No. 1-D Cowden, 200 ft. from S and 2,492 ft. from E Sec. 18, Blk. X	Drlg. 1,430 ft.

CROCKETT COUNTY

Doleman & Moore's No. 1 Ferner, 2,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and S.D.
Stanolind Oil & Gas Co.'s No. 1 Massie, 660 ft. from S and 1,980 ft. from E, Sec. 47, Blk. UV, G.C.&S.F. Sur.	Spudded.
The Texas Company's No. 1 B. B. Ingham, 330 ft. from S and 2,310 ft. from E line, Sec. 36½, I.&G.N. Sur.	Location.

COKE COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Hearn, 980 ft. from S and W, Sec. 271, Blk. 1-A, H.&T.C. Sur.	Fishing 1,300 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur.	To resume drilling.

(Continued on Page 81)

FOUR MICHIGAN COMPLETIONS; LARGEST 850-BBL. PRODUCER

By George A. Whitney

MOUNT PELASANT, Mich., May 16. Four completions were reported from the Central Michigan Field during the week, three being producers and one a dry hole. The largest of the oil wells is the Pure Oil Co.'s No. 2 well, 990 feet from the north and west lines of the Emma O. Reed, SW NE SE, Section 10, Greendale Township, Midland, with an initial of 850 bbls. No. 3 well, on the same farm and 990 feet from the north and east lines of the lease, recently completed, showed an initial production of 2,000 bbls. Walter L. McClanahan, Inc.'s No. 5 well, 990 feet from the north line and 330 feet from the east line of the A. G. Struble, SE NE SW Section 10, same township, produced an initial of 500 bbls. The well started flowing at the rate of 60 bbls. an hour, but failed to maintain its heavy flow for a 24-hour gauge. This well is in the center of the new East Pool, where numerous gushers have been found during the past few months. The third producer for the week was drilled by the Mellon-Pollock Oil Co., in a second test, 990 feet from the south line and 330 feet from the west line of the Lewis Thayer farm, NW SW SE Section 22, Vernon Township, Isabella County, between Mount Pleasant and Clare, and showed an initial of 300 bbls. The oil was found in the first pay sand and will not be drilled deeper at the present time as production is being prorated, as the second pay producers show much larger production.

The dry hole found during the week was drilled by T. K. Buzzard on the H. Simms farm, NW SE Section 4, Mount Haley Township, Midland County. A showing of both oil and gas was found between 3,536 and 3,543 feet and completed at a depth of 3,600 feet. The hole has not yet been abandoned and there is some prospect of giving the hole a shot at the depth of 3,540 feet, in hopes of finding something worth while with a shot, where the oil and gas showings were found.

With more than 30 completed wells in the East Pool, in Greendale Township, Midland County, the late completions mark initial production is somewhat smaller than that from the first wells drilled in the pool. Three thousand-barrel wells were comparatively common when the pool was still in its initial stage. Now, however, as evidenced by the No. 5 Struble farm, about 500 bbls., No. 2 Reed about 850 bbls., and others, production will not be as large on initial production.

R. D. Malcomb and others are starting a test in the northeast corner of the Vernon G. Hastings, NE NW, Section 3, Greendale Township, Midland County.

East Pool

The East Pool, in Greendale Township, Midland County, made quite a record the past 30 days, adding an initial production from 11 completions of 22,165 bbls. They were:

	Bbls.
Talbot Oil Co.'s No. C-1 State, Sec. 10, Greendale Twp.	3,600
W. L. McClanahan, Inc.'s No. 3 Morrison, Sec. 10	3,600
W. L. McClanahan, Inc.'s No. 4 Morrison, Sec. 10	2,400
W. L. McClanahan, Inc.'s No. 2 Morrison, Sec. 10	1,200
W. L. McClanahan, Inc.'s No. 1 Root, Sec. 12	500
Pure Oil Co.'s No. 2 Mullett, Sec. 15	3,140
Pure Oil Co.'s No. 3 Mullett, Sec. 15	2,400
Pure Oil Co.'s No. 3 Reed, Sec. 10	2,000
Pure Oil Co.'s No. 3-B Bernard, Sec. 10	450
Pure Oil Co.'s No. 2-A Iosco Land Co., Sec. 16	1,400
Pure Oil Co.'s No. 1 Pringle heirs, Sec. 14	125
Pure Oil Co.'s No. 2 Reed, Sec. 10	850
W. L. McClanahan, Inc.'s No. 5 Struble, Sec. 10	500
Total	22,165

others are to drill a wildcat test on the J. M. Winzapfel farm in Lot 99, Clark and Plumb Subdivision, Block 4. It is to be drilled to 2,250 feet or the Canyon series unless commercial production is found. It is approximately 6 miles east of Archer City, and 7 miles southeast of deep producing wells, Archer County, in an area which has been little tested.

PANHANDLE DISTRICT

There were three locations for new tests in the Panhandle this week, with three old wells rigging up to deepen in an effort to increase production. Several wells have been deepened in the district during the past two months, aiding some of them materially, but failing to increase production in others.

George F. Robertson is assembling a 7,000-acre block in east central Childress County for a 3,500-foot test, the block centering around the Garden Valley Townsite and on the south side of the Prairie Dog Town River. It may go to 4,000 feet or deeper, depending on developments in the test.

Southeastern Collingsworth County is also witnessing an acreage play, the first in many months. A well may be drilled in the area. The western part of the county is also the scene of some leasing.

Railroad Commission orders went into effect at 7 a. m., May 15, in regard to saving approximately 150,000,000 feet of gas daily in the Panhandle district. The order was designed to curtail the gas wastage in the field.

COMPLETIONS IN WEST TEXAS

Glasscock County

Peck-Service's No. 1 Gillean, dry and abandoned, total depth 2,415 feet.

Pecos County

Easter Oil Co.'s No. 4 Tippett, top pay 1,318 feet, initial production 98 bbls. through tubing, total depth 1,330 feet.

Tom Green County

Dunn Petroleum Co.'s No. 1 Pugh, dry and abandoned, total depth 453 feet.

Ward County

Richardson and others' No. 7 O'Brien, top pay 2,585 feet, initial production 125 bbls., total depth 2,762 feet. Texas Pacific Coal & Oil Co.'s No. 2 James, top pay 2,300 feet, initial production 40 bbls. through tapered tubing, total depth 2,470 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Texhoma Natural Gas Co.'s No. 1-G Haiduk, top pay 2,485 feet, initial production 20,077,500 feet of gas, total depth 2,660 feet.

Gray County

Skelly Oil Co.'s No. 1 Saunders, total depth 2,812 feet, plugged back to 2,510 feet, initial production 12,500,000 feet of gas. The Texas Company's No. 11 Bowers, old total depth 2,969 feet, new total depth 3,060 feet, initial production 65 bbls. of oil and 120 bbls. of water, was dead before deepening. Warner Oil Co.'s No. 2 Chapman, old total depth 2,767 feet, new total depth 2,925 feet, initial production 15 bbls.; no change in production after being deepened.

Hutchinson County

Gates & Morrow's No. 1 Starnes, top pay 3,031 feet, shot 60 quarts 3,030-51 feet, initial production 125 bbls.

Moore County

Sunset Oil Co.'s No. 1 Brumley, shot 130 quarts from 3,468-3,543 feet, total depth 3,598 feet, plugged back to 3,544 feet, initial production 100 bbls. oil and 5 bbls. of water on swab.

EAST TEXAS FIELDS

(Continued from Page 75)

ing choke, total depth 3,761 feet. Tidal Oil Co.'s No. 4 Finney, top sand 3,675 feet, initial production 14 bbls. in 10 minutes through tubing, total depth 3,792 feet. Turman Oil Co.'s No. 5-A Dark, top sand 3,702 feet, initial production 100 bbls. per hour through open 2½-inch tubing, total depth 3,775 feet. Venerable and McClannahan's No. 9 J. A. Birdwell, top sand 3,598 feet, initial production 175 bbls. per hour through open 2½-inch tubing, total depth 3,627 feet. Woodley Petroleum Corp.'s No. 3 McMillian, location abandoned.

San Augustine County

Jones and Tennant's No. 1 A. P. Davis Estate, dry and abandoned, total depth 4,008 feet.

Smith County

British-American's No. 2 M. L. Thompson, top sand 3,628 feet, initial production 136 bbls. in one-fourth hour through open casing and tubing, total depth 3,650 feet. C. B. Bunte and Droppleman's No. 2-A Jarvis, top sand 3,738 feet, initial production 100 bbls. per hour through open tubing, total depth 3,744 feet. Hemp Florence's No. 2 S. S. Cooke, top sand 3,817 feet, initial production 40 bbls. in one-fourth hour through open tubing, total depth 3,820 feet. McMahon, Moore and McCulloch's No. 3 S. S. Cooke, top sand 3,702 feet, initial production 140 bbls. per hour through open 2½-inch tubing, total depth 3,708 feet.

Sinclair Prairie Oil Co.'s No. 12-A Jarvis, top sand 3,722 feet, initial production 40 bbls. in one-fourth hour through open tubing, total depth 3,726 feet; No. 9-C Jarvis, top sand 3,674 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,679 feet; No. 10-C Jarvis, top sand 3,691 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,696 feet; No. 12-A Mayfield, top sand 3,804 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,808 feet; No. 2 Bunch Wilson, top sand 3,746 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,749 feet; No. 5 Bunch Wilson, top sand 3,746 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,737 feet. Sun Oil Co.'s No. 5 J. A. Lane, top sand 3,688½ feet, initial production 29 bbls. per hour through open tapered tubing, total depth 3,737 feet; No. 3-A A. V. Ritch, top sand 3,664 feet, initial production 46 bbls. per hour through tapered tubing, total depth 3,668 feet; No. 1 St. Clair, top sand 3,738 feet, initial production 38 bbls. per hour through open tapered tubing, total depth 3,741 feet.

The Texas Company's No. 2-B Jarvis, top sand 3,719 feet, initial production 32½ bbls. in one-fourth hour through open tubing, total depth 3,722 feet. Tulsa Oil Co.'s No. 4 Wheelis, top sand 3,773 feet, initial production 120 bbls. per hour through open 2½-inch tubing choke, total depth 3,770 feet.

Upshur County

Chatam Oil Co.'s No. 2 H. Fenton, top sand 3,746 feet, initial production 61 bbls. per day through various chokes, total depth 3,772 feet. Danciger Oil & Refining Co.'s No. 2 Stinchcomb, top sand 3,719 feet, initial production 27 bbls. in one-fourth hour through open tubing, total depth 3,752 feet. Dean and Atkins' No. 2 O. M. Victory, top sand 3,625 feet, initial production 40 bbls. in one-fourth hour through open tubing, total depth 3,637 feet. Flannigan Production Co.'s No. 1 Whitehurst, top sand 3,810 feet, initial production 55 bbls. per day by heads, total depth 3,644 feet. Gwynn and Overby's No. 2 A. J. Sanders, top sand 3,642 feet, initial production 61 bbls. per day through various chokes, total depth 3,660 feet.

Humble Oil & Refining Co.'s No. 16 J. K. Edwards, top sand 3,683 feet, initial production 65 bbls. per hour through various chokes, total depth 3,693 feet; No. 8 I. D. Smith, top sand 3,652 feet, initial production 35 bbls. per hour through three-fourths-inch tubing choke, total depth 3,673 feet; No. 2 J. M. Smith, top sand 3,650 feet, initial production 12 bbls. in one-fourth hour through three-fourths-inch tubing choke, total depth 3,666 feet. Island Oil Co.'s No. 1 Bonner Estate, top sand 3,645 feet, initial production 125 bbls. per hour through open tubing, total depth 3,650 feet. Lester and Duffield's No. 2 J. Nones, top sand 3,746 feet, initial production 61 bbls. per day through various chokes, total depth 3,752 feet.

Margay Oil Corp.'s No. 3-C M. and O. M. Victory, top sand 3,659 feet, initial production 100 bbls. per hour through various chokes, total depth 3,681 feet. Mudge Oil Co.'s No. 3 S. E. Richardson, top sand 3,669 feet, initial production 61 bbls. per day through various chokes, total depth 3,700 feet. Shell Petroleum Corp.'s No. 3 W. M. Landers, top sand 3,674 feet, initial production 7½ bbls. in one-fourth hour through tapered tubing, total depth 3,697 feet.

Van Zandt County

Pure Oil Co.'s No. 9 A. R. Tunnell, initial production first 24-hour gauge after choked for proration 93 bbls., total depth 2,989 feet; No. 4 D. R. Howell, initial production 131 bbls. first 24-hour gauge after choked for proration, total depth 2,945 feet; No. 3 J. F. Crim, initial production first 24-hour gauge after choked for proration, 118 bbls., total depth 2,964 feet; No. 1 N. E. Clark, initial 40 bbls. first 24-hour gauge after choked for proration, total depth 2,972 feet.

J. W. EVANS DIES

John W. Evans, auditor of the Independent Oil Producers Agency of California for a period of 20 years, died in Los Angeles last week.

EAST AND EAST CENTRAL TEXAS WILDCATS

(Continued from Page 75)

DALLAS COUNTY

Long Creek Dev. Co.'s No. 1 T. J. Lupton, center of 160-ac. tract, 3½ miles N of Mesquite, J. Johnson Sur. ..... T.D. 650 ft.

DELTA COUNTY

Commerce Oil Co.'s No. 1 Ablowich, 150 ft. from S line and 776 ft. from W line of H. D. Jewett 52-ac. tract, E. Chick Sur. ..... Drlg. 3,520 ft.
Joiner et al's No. 1 Blackwell, 800 ft. S and 150 ft. from E lines of 275-ac. tract, Dunnetelle Sur. ..... S.D. 1,975 ft.

ELLIS COUNTY

Community's No. 1 Reeves ..... Waiting on cmt. to set 100 ft.
E. M. Rogers' No. 1 John Lee Winn, 1,650 ft. from E and 150 ft. from S of Orland, Orlo Wheeler Sur. ..... S.D. 1,435 ft.
Wortham Petroleum Co.'s No. 2 Cerf, John Harris Sur., 50 ft. W of No. 1 ..... S.D. 1,150 ft.

FRANKLIN COUNTY

Tom Harper's No. 1 fee, 150 ft. from N line and 200 ft. from E line of 116-ac. tr., W. M. Dawson Sur. .... Coring 3,400 ft.
T. E. Mayberry's No. 1 M. L. Edwards, 345 ft. from E line of lease and 6½ miles NW of Mount Vernon, C. R. Miller Sur. ..... Derrick.

GREGG COUNTY

Abernathy and Kirkpatrick's No. 1 Bramlett, 330 ft. from N and W lines of S 25 acres of 32-ac. tract, D. Sanches Sur. ..... Derrick.
Alexander and Rasmussen's No. 1 Dixon, 335 ft. N and 169 ft. W of SE cor. of J. M. Dixon 106.5-ac. tract, L. Beaty Sur. ..... Derrick.
Henry L. Allen's No. 1 Bonner Estate, 330 ft. from N and E lines of 19.4-ac. lease, J. McRae Sur. ..... Rig up.
Arkansas Fuel Oil Co.'s No. 1 Burnside, 240 ft. from N line and 450 ft. from E line of lease, F. W. Johnson Sur. ..... Location.
Arkansas Fuel Oil Co.'s No. 1 Taylor Lee, 330 ft. out of NW cor. of 52.1-ac. lease, William Robinson Sur. ..... Waiting on cmt. 3,531 ft.
Arkansas Fuel Oil Co.'s No. 1 E. M. Watley, 415 ft. E and 330 ft. N of SW cor. of 43.91-ac. lease, Wm. Robinson Sur. ..... Derrick.
Atlantic Oil Producing Co.'s No. 1 H. Pritchard, 330 ft. from N and E lines of lease, F. W. Johnson Sur. ..... Drlg. 3,000 ft.
Will Brown's No. 1 E. Choice, 400 ft. due east of Collins' No. 1 H. T. Elder ..... Waiting on cmt. to set 3,630 ft.

D. M. Buffington's No. 1 Dansley, 500 ft. W and 200 ft. N of NE cor. of Searight Blackman 100-ac. lease, W. P. Chisum Sur. ....Drlg. 1,155 ft.
Burnham and Johnston's No. 1 Jackson-Sample, 150 ft. from N line of tract and S offset to Zion's No. 1 Barnett, Jacob Taylor Sur. ....Moving in rig.
Canadian Oil & Production Co.'s No. 1 Hilburn, 994 ft. from S line and 313 ft. from W line of 40-ac. lease, Joseph Hay Sur. ....Drlg. 3,520 ft.
Central Drilling Co. et al's No. 1 Castleberry, 150 ft. from N line and 69 ft. from S line, 150 ft. from W line and 450 ft. from E line of 4-ac. tract, D. Sanches Sur. ....Rig up.
Continental Oil Co.'s No. 1 A. A. King, 330 ft. from N line and center of E and W lines of lease, M. Tennison Sur. ....Set surface csg.
Dodd and Markey's No. 1 J. F. Holt, 615 ft. E and 707 ft. N of SW cor. of 200-ac. tract, H. Edwards Sur....Derrick.
F. Dodson et al's No. 1 Bacle, 158 ft. from E line and center of N and S lines of E 5 acres, G. W. Hooper Sur. ....Derrick.
Empire Gas & Fuel Co.'s No. 1 H. E. Thomas, 330 ft. from N line and E lines of lease, J. M. Morris Sur. ....Location.
Eslick and Bazzell's No. 1 J. H. Thomas, 325 ft. from N and S lines and 290 ft. from W line of N 15 acres of 65-ac. tract, H. F. Rogers Sur. ....T.D. 3,590 ft.; 2,000 ft. oil in hole.
Export Petroleum Corp.'s No. 1 Coleman, center of Blk. No. 16, H. R. Hokit Sur. ....Set surface csg.
Lewis Godlin's No. 1 E. L. Walker, 330 ft. N of road, 330 ft. from E line of 80.2-ac. tract, M. Dillard Sur...Derrick.
S. A. Guiberson et al's No. 1 J. M. Christian, 150 ft. from W line and center N and S lines of 5.77-ac. lease, G. W. Hooper Sur. ....Waiting on cmt. to set 3,517 ft.
Hughes et al's No. 1 Louley et al, 500 ft. from S line and center of E and W lines of Lot No. 3, D. Dainwood Sur. ....Running tubing; T. D. 3,686 ft.
Humble Oil & Refining Co.'s No. 1 H. Castleberry, 330 ft. from N and E lines of lease, B. H. Hampton Sur. ....Derrick.
Bob Jordan's No. 1 W. P. Crewa, 275 ft. from S line and 330 ft. from E line of lease, J. B. Bradshaw Sur. ....Moved rig off.
Koberg Oil Co.'s No. 1 L. Martin, 330 ft. from S and W lines of 25-ac. tract, T. Johnson Sur. ....Drlg. 2,976 ft.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur.....S.D. 700 ft.
Lovett-Norr et al's No. 1 Rufus Smith, 1,100 ft. from N line and 750 ft. from W line of lease, R. Slaughter Sur. ....Set surface csg. 55 ft.
Magnolia Petroleum Co.'s No. 1 J. W. Stone, 330 ft. from N and W lines of 68-ac. lease, D. Sanches Sur. ....Testing 3,665 ft.
Magnolia Petroleum Co.'s No. 1 Land and Crim, 330 ft. from N line and 338 ft. from E and W lines of 30.75-ac. lease, L. B. Outlaw Sur. ....Derrick.
Magnolia Petroleum Co.'s No. 1 H. P. Hale, 330 ft. from N and W lines of 50-ac. lease, M. V. Winkle Sur. ....Derrick.
Mission Oil Co.'s No. 1 W. P. Crewa, N offset to Bay Oil Corp.'s No. 1 Crewa, J. N. Bradshaw Sur. ....Drlg. 2,640 ft.
McVey et al's No. 1 Kelly Dixon, 140 ft. NW along corner line of street from E corner of Blk. No. 137 and 655 ft. SW at right angles, M. V. Winkle Sur...Spudded and S.D.
J. D. Patty et al's No. 1 J. C. McCormick, 207 ft. SE at right angles to Gladewater-Tyler road and 540 ft. SW of Abernathy and Kirkpatrick's No. 1 Gregston, M. Dillard Sur. ....S.D. 1,600 ft.
E. A. Payne et al's No. 1 R. M. Woods, 20 ft. from S line and 31 ft. from W line of 2.13-ac. lease, H. R. Holit Sur. ....Derrick.
Pennsylvania Oil & Refining Co.'s No. 1 Bonner, 695 ft. W and 330 ft. S of most easterly NE cor. of survey, James McRae Sur. ....Rig up.
Pilot Oil Co.'s No. 1 P. McGeorge, 330 ft. from N line and center of E and W lines of 12-ac. lease, P. McAnnelly Sur. ....Location.
Pruitt and Standberry's No. 1 M. B. Hughey, Blk. No. 150, Kilgore Townsite, Mary Van Winkle Sur. ....Derrick.
Reeves et al's No. 1 W. L. Hestland, center of five-eighths-acre tract, midway from Lampton Church and Sarson's No. 2 Hall, D. Sanches Sur. ....Drlg. 1,450 ft.
Rhodes Drilling Co.'s No. 1 J. E. Christian, 125 ft. from S line and center of W 2 acres of 4-ac. tract, G. W. Hooper Sur. ....Derrick.
Frank Russell's No. 1 Crimm, center of one-half-acre tract, M. V. Winkle Sur. ....Rig up.
Showers and Moncrief's No. 1 A. D. Bacle, center of W 5¼ acres of N 11-ac. lease, G. W. Hooper Sur....Derrick.
Jay Simmons' No. 1 A. V. Bacle, 426 ft. S and 350 ft. W of NW cor. of Barnsdall's McGrede lease, G. W. Hooper Sur. ....Drlg. 3,614 ft.
Stanolind-Simms et al's No. 1 Albright, 330 ft. from N and E lines of lease, W. H. Hart Sur. ....Coring 3,619 ft.
Stroube and Stroube's No. 1 Finley and Thomas, 150 ft. from N line and 330 ft. from W line of 10-ac. lease, C. H. Alexander Sur. ....Location.
Stroube and Stroube's No. 1 Anderson-Harris, 160 ft. from S and E lines of 5-ac. lease, being the E 5 acres of H. W. Wages tract, C. H. Alexander Sur. ....Drlg. 1,700 ft.
Sun Oil Co.'s No. 1 J. M. Campbell, 330 ft. from S line and center of E and W lines of lease, G. R. Rains Sur. ....Location.
Travis and Crosby's No. 1 K. P. Lodge Lot, 210 ft. S of Gulf's No. 6 Alexandria and 40 ft. from center line of road, M. V. Winkle Sur. ....Testing 3,587 ft.
T. J. Tucker's No. 1 Mary Rufus, center of one-half-acre tract, Mary Van Winkle Sur. ....T.D 3,630 ft.; waiting on standard rig.
M. K. Towns' No. 1 Griffin Davis, W offset to Mullendore and Berry's No. 1 Davis, W. P. Chisum Sur. ....T.D. 3,612 ft.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 4,800 ft. from W of survey, Mary Van Winkle Sur. ....Rig up.
Vance and Fagan's No. 1 Alexandria, center of one-quarter-acre tract out of NW cor. of Alexandria 21-ac. tract, M. V. Winkle Sur. ....Drlg. 2,575 ft.
C. William et al's No. 1 George Anderson, center of 2¼-ac. lease, C. H. Alexander Sur. ....Drlg. 2,500 ft.
H. E. Wrenn's No. 1 A. A. King, 150 ft. from S and E lines of 75-ac. lease, W. P. Chisum Sur. ....T.D. 3,753 ft.; tested salt water; plugged back; waiting on cmt. to set.
Zion Oil Co.'s No. 1 Barnett, 260 ft. from E and W lines and 330 ft. from south L of lease, E half of W 50 acres of 150-ac. tract, Jacob Taylor Sur. ....Drlg. 2,881 ft.

HILL COUNTY

Sherman-Houseman's No. 1 J. F. Griffith, in Samuel Waddell Sur. ....S.D. 3,256 ft.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ....S.D. 540 ft.

HOUSTON COUNTY

Nelson's No. 1 Harron, 300 ft. out of NE cor. of 327-ac. tract, J. P. Procella Sur. ....Spudded and S.D. 37 ft.
T. B. Roberts' No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ....T.D. 2,660-66 ft.

HUNT COUNTY

Branson et al's No. 1 Gray ....Location.
Russell et al's No. 1 Brooks and Quattlebaum ....S.D. 1,455 ft.

KAUFMAN COUNTY

Standy Darnell et al's No. 1 Sally Pannill ....T.D. 1,315 ft.

LAMAR COUNTY

G. W. Davy et al's No. 1 McGustion, 450 ft. from S line, 450 ft. from W line of farm and survey, Galet Wood Sur. ....S.D. 3,600 ft.
Doyle and Jondeau's No. 1 Martin, 990 ft. from N line and 330 ft. from E line of tract, Joseph Deck Sur. ....Drlg. 2,410 ft.
Doyle and Jondeau's No. 1 Horn, 226 ft. from S line and 608 ft. from E line of lease, R. P. Mayor Sur. ....T.D. 2,490 ft.

LEON COUNTY

Salzer Drlg. Co.'s No. 1 Dr. J. M. Blair, 1,010 ft. from N line, 1,986 ft. from W line, Sec. 19, Blk. E, Lucia Hibbard Sur. ....Derrick on ground.

MORRIS COUNTY

Leonard's (Tucker-Fullwood) No. 1 P. M. Staggers, 450 ft. from N line and 150 ft. from E line of 65.5-ac. tract, J. D. Nelson Sur. ....Lost core 3,527 ft.
Merrill's No. 1 Walcott, 330 ft. from N and E lines of most northerly NE cor. of survey, 3 miles S of Carson, D. A. Russell Sur. ....Moving in derrick.
Olvey et al's No. 1 Gabriel Silbey, 330 ft. from N line and about 500 ft. from W line of lease, 2½ miles NE of Carson, W. O. Matthews Sur. ....Set surface csg.

NACOGDOCHES COUNTY

Adams et al's No. 1 Fuller Brothers, located in a 269-ac. tract, Jose Flores Sur. ....Location.
Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Herrera Sur. ....S.D. 265 ft.

POLK COUNTY

Sunshine Oil Co.'s No. 1 Brawley, 150 ft. from S line and 250 ft. from E line of W 100 acres of lease, F. Johnson Sur. ....Derrick.
Taylor et al's No. 1 E. L. Duke, 330 ft. from N and W lines of 23.5-ac. tract, SW cor. of county, Peter J. Manard Sur. ....Rig up.

RAINS COUNTY

C. H. Bayliss' No. 1 Ownby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ....S.D. 4,036 ft.; to drill deeper.

RED RIVER COUNTY

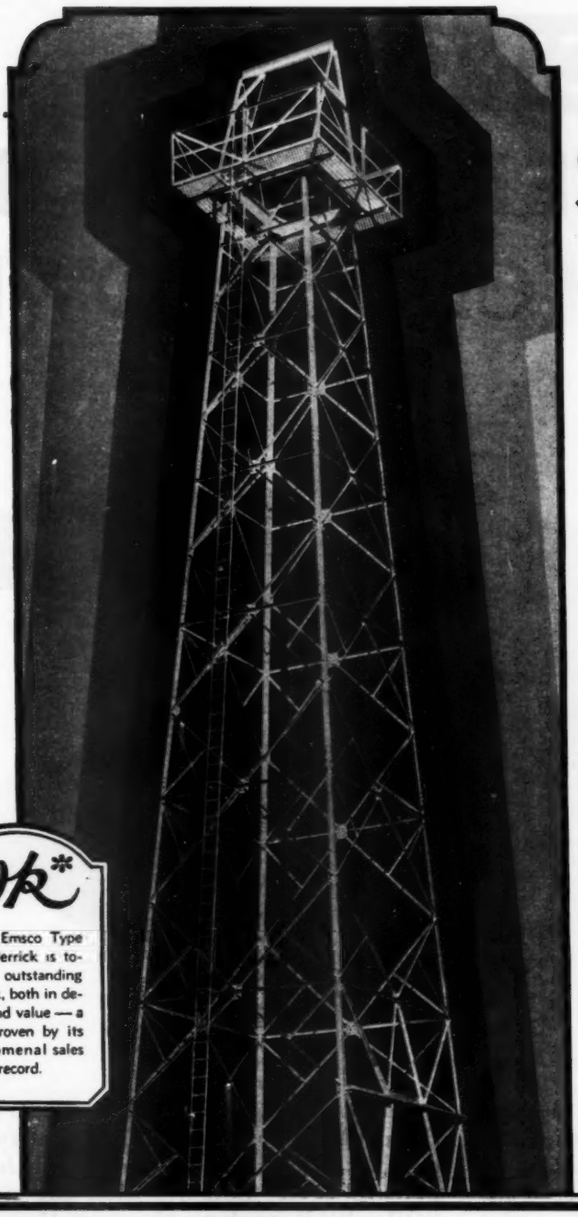
Hoffman and Henson's No. 1 H. H. Lennox, 2,790 ft. W and 300 ft. S of most easterly NE cor. of survey, J. E. Edmondson Sur. ....S.D. 60 ft.
Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ....S.D. 2,546 ft. (corrected).

ROCKWALL COUNTY

Bucanner Oil Co.'s No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ....Set 10-in. csg. 120 ft.

RUSK COUNTY

Brooks Petroleum Co.'s No. 1 Mayfield, Daniel Clark Sur. ....Top sand 3,622 ft.; waiting on standard rig; would not flow; T.D. 3,702 ft.
Butler and Calhoun's No. 1 C. C. Lowe, 225 ft. from N line and 200 ft. from E line of 85-ac. lease, W. G. Tutt Sur. ....Derrick.
Byrd-Frost's No. 1 Buckner, J. E. Peyton Sur. ....T.D. 4,077 ft.; junked; will skid derrick.
Casey Oil Co.'s No. 1 E. B. Alford, center of 3-ac. lease, Isaac Parker Sur. ....S.D. 2,300 ft.
Fagin and Salmon's No. 1 Scroggins, 330 ft. from N and W lines of lease, E. Collard Sur. ....S.D. 535 ft.
R. W. Fair et al's No. 1 J. R. Alford, center of Blk. No. 24, T. J. Moore Sur. ....Drlg. 2,800 ft.
Gant-Gerwin and Wegener's No. 1 A. Till, 330 ft. from N line and 464 ft. from W and E line of 26-ac. lease and tract, M. V. Pena Sur. ....S.D. 3,663 ft.; would not flow through tubing, waiting on standard rig.
Gant and Garwin's No. 1 W. P. Moore, 330 ft. S and E of SW cor. of Arkansas, W. P. Moore 40-ac. tract, M. V. Pena Sur. ....Location.
J. Guinn's No. 1 Neal Cooper, center of Blk. No. 36, T. J. Moore Sur. ....Rig up.
Harris and Russell's No. 1 T. W. Harris, 330 ft. from S line and 660 ft. from W line of most southerly SW cor. of 160-ac. tract, 3 miles SW of Henderson, W. G. Davis Sur. ....Derrick.
Hasting and Dodson's No. 1 E. B. Alford, center of Blk. No. 27, T. J. Moore Sur. ....Derrick.
Hathaway et al's No. 1 Gray, J. M. McLain Sur. ....Waiting on cmt. to set; T.D. 3,519 ft.
Heiden-Rodgerson et al's No. 1 Barton and Birdwell, N offset to Reisinger et al's No. 1 Barton, W. G. Tutt Sur. ....S.D. 3,727 ft.
Hendershot et al's No. 1 Green Washington, 330 ft. from N line and 250 ft. from W line of 11.75-ac. tract, D. Clark Sur. ....Set surface csg.
Holland et al's No. 1 S. E. Brox, 330 ft. from N line and 250 ft. from W line of 20-ac. lease, Thomas Grey Sur. ....Rig up.
W. F. Hollifield's No. 1 Wylie, 160 ft. from W and E line and 330 ft. from S line of 10-ac. lease, Juan Ximenes Sur. ....Waiting on cmt. to set 3,563 ft.
Jackson et al's No. 1 D. Florence, 330 ft. from S and E lines of lease, Joe English Sur. ....Swabbing; T.D. 3,707 ft.
W. C. Know's No. 1 W. D. Peterson, center of 3.75-ac. tract, Jacob Lewis Sur. ....S.D. 2,200 ft.; rig moved off.
Meyer et al's No. 1 Tom Lacy, 350 ft. from N and W line of N 50 acres of 100-ac. tract, J. N. Sparks Sur. ....Location.
Mid-Kansas Oil & Gas Co.'s No. 1 Henry Clay estate, 370 ft. from S line and 330 ft. from W line of 43-ac. tract, M. V. Pena Sur. ....Drlg. 2,707 ft.
Oritz Oil Co.'s No. 1 Church, 175 ft. S and 175 ft. E of SE cor. of Sun-Schuler joint lease, J. B. De Cadena Sur. ....T.D. 3,646 ft.
Pace Petroleum Co.'s No. 1 Wells, W offset to East Texas, W. P. Chisum Sur. ....Derrick.
Patterson Drilling Co.'s No. 1 W. N. Brightwell, center of 3.4-ac. tract, R. E. Winn Sur. ....Drlg. 3,544 ft.
Primrose Petroleum Corp.'s No. 1 W. P. Brett, center of N and S lines of lease, F. Cordova Sur. ....Waiting on cmt. to set 3,700 ft.
D. B. Reed and Standard Supply Co.'s No. 1 Church, 121 ft. NE along SE line and 86 ft. NW at right angles, J. B. De Cadena Sur. ....Waiting on cmt. to set 3,677 ft.
Ross Seward's No. 1 Burton, J. J. Y'Barbo Sur. ....Skidded rig; S.D. 1,500 ft.
Sabins et al's No. 1 J. R. Irion, 330 ft. from S and E line of 2-ac. tract, John Womack Sur. ....Rig up and S.D.
Jay Simmon's No. 1 D. C. Joyner, 2,050 ft. from S line and 300 ft. from W line of 74.11-ac. tract, F. Cordova Sur. ....Moving in rig.
Sinclair Prairie Oil Co.'s No. 1 Allen Kersh, 878 ft. NE along N line from NW cor. and 330 ft. SE at right angles, E. B. Fowlkes Sur. ....Drlg. 3,500 ft.
W. L. Stearns' No. 1 Negro Church, center of tract, Juan Ximenes Sur. ....Derrick.
Sun Oil Co.'s No. 1 Ellen Till, 330 ft. from S line and 306 ft. from W line of 126-ac. tract, M. C. Pena Sur. ....Drlg. 1,360 ft.



More SAFE-LOAD per dollar of cost

Designed especially for specific drilling conditions and service, the Type "K" is the biggest derrick-value Emsco has ever produced Ninety-four feet high; the legs are made from Emsco Special Hi-Elastic Steel; well braced; the usual Emsco high standard construction throughout, embodying a wide margin of safety for the service involved. Get detailed specifications now.

OK*

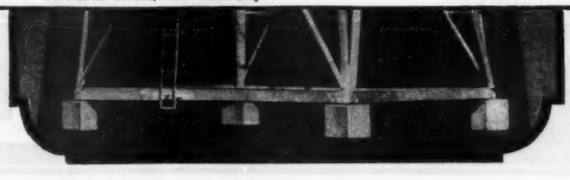
*The Emsco Type "K" Derrick is today's outstanding derrick, both in design and value — a fact proven by its phenomenal sales record.

EMSCO type "K" DERRICK

EMSCO DERRICK & EQUIPMENT CO.

6701-7101 SOUTH ALAMEDA STREET,
HOUSTON, TEXAS: BOX 184
Export Office:
CONTINENTAL EMSCO COMPANY, INC.
19 Rector Street, New York City

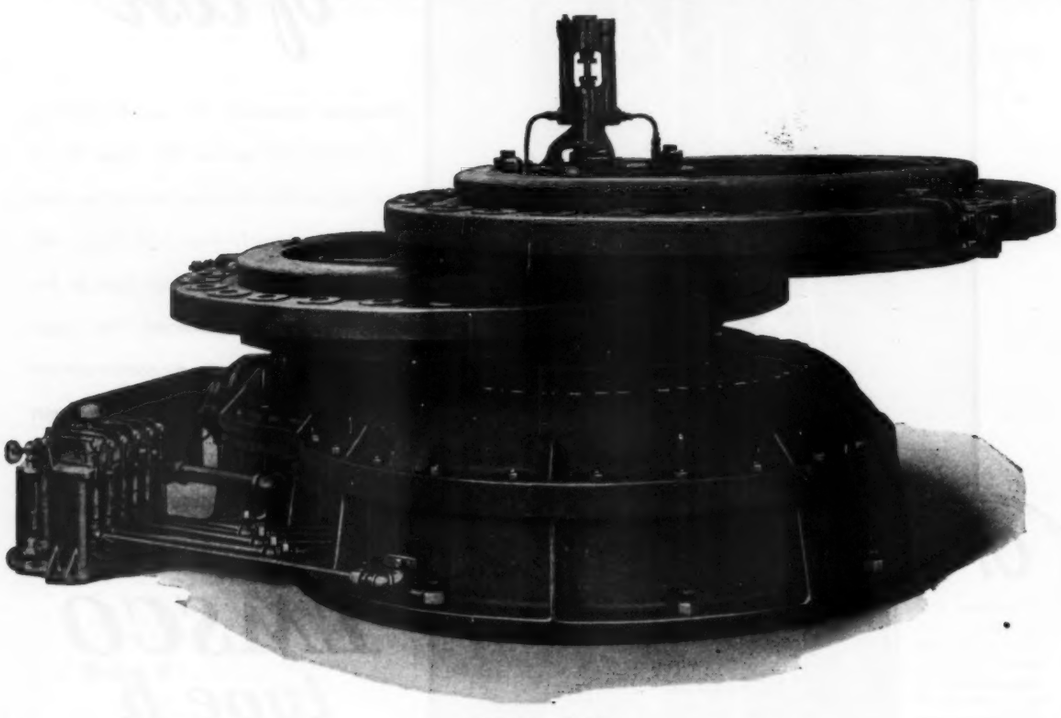
LOS ANGELES, CALIFORNIA
DALLAS, TEXAS: BOX 148
All Emsco and D + B Products Sold in Mid-Continent Fields by The Continental Supply Company



EMSCO
STEEL EQUIPPED WELLS
ARE SAFE

ANNOUNCING

the IMPERIAL No. 80 OILBATH GEARED POWER



(Patents pending)

An extremely rugged and compact design of the overpull type—driven through a double reduction gear. All gears are machine cut and are entirely enclosed in an oil-tight base, running continuously in an oil bath. The eccentric bearings and all bearings not immersed in the oil bath, are lubricated by a force-feed *return system* by which clean lubricant is re-circulated.

Rated horsepower is 80 at 20 R. P. M. Band wheel powers of this capacity have greater housing expense and higher belting cost. Consult with the nearest "Oilwell" Branch on the exceptional and economical advantages of the No. 80.

OIL WELL SUPPLY CO.

Branch Stores in all Oil Fields

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

1932

"OILWELL"

Sun Oil Co.'s No. 1 Alph Lee, 2,323 ft. from E line and center of N and S lines of 94-ac. lease, Peter Tipps Sur. ..... Location.
Texas State Oil Co.'s No. 1 R. G. Mason, 171 ft. from N line and 122 ft. from E line of 2½-ac. lease, J. B. De Cadena Sur. ..... Moving in rig.
Tex Jersey Oil Co.'s No. 1 Cora Hannah, center of 6-ac. lease, J. B. De Cadena Sur. ..... Derrick.
R. H. Vice's No. 1 Neal Cooper, 315 ft. SW along NW line of Cooper tract and 141 ft. SE at right angles, T. J. Moore Sur. ..... Rig up.
Sam K. Vierson's No. 1 Will McCord, 330 ft. from S line and 180 ft. from E line of 5.48-ac. lease and tract, J. B. De Cadena Sur. ..... Derrick.
Watson and Butler's No. 1 G. W. Tipps, 330 ft. from S line and 600 ft. from W line of 18-ac. lease, H. M. Smith Sur. ..... Derrick.
Weaver-Crim's No. 1 F. Bean, 175 ft. from NW line and 212 ft. from S line of 16-ac. lease, Mary Cogswell Sur. ..... Waiting on cmt. to set 3,040 ft.
Nat Wiseman's No. 1 Thrash, 177 ft. S and 87 ft. E of NW cor. of 62.6-ac. tract and 2½-ac. lease, F. Cordova Sur. ..... Derrick.

JOINER POOL—RUSK COUNTY

Paulett et al's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... S.D. 1,465 ft.

SMITH COUNTY

Droppleman & Bunte's No. 1 Atkinson, Calloway Dean Sur. ..... Bailed water down 1,550 ft.; will replug.
Joiner et al's No. 1 C. S. Jackson ..... S.D.; swabbed dry 3,985 ft.
J. E. Lucas' No. 1 Henry Jackson, 150 ft. from N and E lines of 25-ac. tract, James Jordan Sur. .... Set surface csg.
R. J. McMurray's No. 1 Frank Cole, 330 ft. from E line of lease and center of N and S lines of N 10.20-ac. lease, E. Daniels Sur. ..... Drlg. 3,764 ft.
Quintella McCullough's No. 1 Jessie Cole, 200 ft. from S line and center of E and W lines of 6-ac. lease, J. Jordan Sur. ..... S.D. 3,000 ft.
Smith Oil & Gas Co.'s No. 1 S. S. Cooke, 330 ft. S and 330 ft. W of SE cor. of Sinclair Prairie's E. E. Moores lease, Juan Vargus Sur. ..... Rig up.
Sutton and Hawkins' No. 1 Church Lot, 210 ft. from S line and 180 ft. from W line of tract, James Jordan Sur. ..... Drlg. 1,245 ft.
Alph Tillman et al's No. 1 Jessie Cole, 137 ft. from E line and 375 ft. from N line of 32-ac. lease, center of 5-ac. lease, James Jordan Sur. ..... Rig up.
C. K. West's No. 1 L. S. Sartain, 1,112 ft. from W line and 330 ft. from E line of 76-ac. tract on NE 21-ac. lease of tract, James Jordan Sur. ..... Running csg.; T.D. 3,804 ft.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ..... T.D. 4,212 ft.

UPSHUR COUNTY

Conservative Oil Co.'s No. 1 E. O'Byrne, 350 ft. from N and E lines of 20-ac. lease, D. Ferguson Sur. ..... Drlg. 2,350 ft.
Cranfill & Reynolds and Russ' No. 1 Williams, 330 ft. from S and E lines of lease, McKinley and Williams Sur. ..... Location.
Faith Oil Co.'s No. 1 E. H. Brawley, 330 ft. E and W of NE cor. of The Texas Company's J. Williams 93-ac. lease ..... Rig up.
Grover Hart's No. 1 Allen, 330 ft. from S and E lines of lease, one-half mile W of Mountain, Gonzales Sur. ..... Derrick.
Hill Kimsey's No. 1 D. F. Smith, 466 ft. from S line and 1,165 ft. from E line of 266-ac. tract, J. R. Davis Sur. ..... Derrick.
Pat Hudson et al's No. 1 D. F. Smith, 330 ft. out of SE cor. of W 100 acres of the N 200 acres of the 272-ac. lease, 3 miles E and 1½ miles N of Cranfill & Reynolds' No. 1 Rash, John Denson Sur. ..... Waiting orders 3,710 ft.
J. C. McFarland et al's No. 1 Willie Starr, center of S 40 acres of Starr 96-ac. tract, Charles Cooper Sur. ..... S.D. 3,523 ft.
Pitts et al's No. 1 H. Davis, center of 7.5-ac. lease, W. R. Stephens Sur. ..... Derrick.
A. A. Trammell et al's No. 1 E. H. Hampton, 330 ft. from S and E line of S 60 acres of E 150 acres of 192-ac tract, William King Sur. ..... Top sand 3,686 ft.; S.D. 3,688 ft.
Webster's No. 1 R. H. McClelland, 1,956 ft. E and 385 ft. S of NW cor. of 751-ac. tract, M. P. Del Torres Sur. ..... Derrick.
G. L. Wickliffe et al's No. 1 M. E. Florence, center of 41.5-ac. lease, M. Chandler Sur. ..... Derrick.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. DeCadena Sur. ..... S.D. 2,405 ft.
Kelly O. & G. Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... S.D. 2,300 ft.
Pure Oil Co.'s No. 1 R. M. Butler, 650 ft. W of E line and 150 ft. S of N line of lease, David Rose Sur. ..... Cmt. setting 3,009 ft.
Pure Oil Co.'s No. 2 Mrs. C. White, 250 ft. S of N line and 690 ft. E of W line of lease, John Walling Sur. ..... Ready for christmas tree; T.D. 2,951 ft.
Pure Oil Co.'s No. 2 N. R. Blake, 501 ft. S of N line and 225 ft. W of E line of lease, John Walling Sur. ..... Location.
Pure Oil Co.'s No. 4 A. W. Ellison, 700 ft. S of N line and 225 ft. E of W line of lease, James Rose Sur. ... Drlg. 1,683 ft.
Pure Oil Co.'s No. 5 L. M. Brawner, 200 ft. S of N line and 1,572 ft. W of E line of lease, John Walling Sur. ..... Derrick standing.
Pure Oil Co.'s No. 5 W. F. Swain, 552 ft. W of E line and 250 ft. N of S line of lease, John Walling Sur. ..... Location.
The Texas Company's No. 6, 1,044 ft. N of S line and 59 ft. W of E line of lease, John Walling Sur. ..... Location.
Van Oil Association's No 1 Tankersley, 300 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... T.D. 2,850 ft.

WOOD COUNTY

Talko Oil Co.'s No. 1 G. T. Ross, B. L. Smith Sur. ..... S.D. 2,794 ft.
Wood County Dev. Co.'s No. 1 Davis, approximately 180 ft. from S line of 160-ac. tract and 2½ miles S of Kantes in Sarah McDonald Sur. ..... Moving in rig.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 76)

ECTOR COUNTY

Thomas et al's No. 1 Edwards, 330 ft. from S, 2,310 ft. from E, Sec. 38, Blk. 43, Twp. 3s, T.&P. Sur. ..... S.D. 770 ft.
H. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 3s, G. M. M.Br.&A. Sur. ..... T.D. 3,275 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.F. No. 7,247 ..... S.D. 2,257 ft.

FISHER COUNTY

Condor Petroleum Co.'s No. 1 Steele, 660 ft. from S and 330 ft. from W of W half of SE Sec. 216, B.B.B.&C. Ry. Sur. ..... Drlg. 2,075 ft.
Cranfill & Reynolds' No. 1 George, 400 ft. from N and 330 ft. from E, Sec. 200, Blk. 1, B.B.B.&C. Sur. ..... T.D. 5,255 ft.; cleaning out.
Sinclair-Prairie's No. 2 Steele, 250 ft. from N and W of NE Sec. 72, H.T.&B. Sur. ..... Drlg. 2,273 ft.
Southern Oil Co.'s No. 1 Purdue, 990 ft. from S and E Sec. 202, Blk. B, B.B.&C. Sur. ..... Location.

GAINES COUNTY

McElreath et al's No. 1 Sparks, 330 ft. from N and E Sec. 397, Blk. G ..... Rigging up.

GLASSCOCK COUNTY

Mann et al's No. 1 fee, 330 ft. from N and 1,980 ft. from E, Sec. 27, Blk. 34, Twp. 3s, T.&P. Sur. ..... S.D. 2,300 ft.
Humble Oil & Ref. Co.'s No. 2 Arrington, 1,300 ft. from W, Sec. 22, Blk. 33, Twp. 2s, T.&P. Sur. ..... Drlg. 1,865 ft.
Penn Oil Co. et al's No. 1 F. A. Hobenstreit, 2,310 ft. from N and E lines of Sec. 47, Blk. 36, Twp. 3s, T.&P. Sur. ..... Drlg. 2,895 ft.

GARZA COUNTY

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,680 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... S.D. 3,390 ft.

HOWARD COUNTY

American-Maracaibo's No. 5-A Settles, 1,896 ft. from N. 1,884 ft. from W, Sec. 6, Blk. 32, T.&P. Sur. ..... Rig.
F. H. E. Oil Co.'s No. 1 Denman, 330 ft. from N, 2,310 ft. from E of Sec. 14, Blk. 30, T.&P. Sur. ..... Show oil 2,530 ft.; drlg. 2,780 ft.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W, Sec. 14, Blk. 29, Twp. 1s, T.&P. Sur. .. Spudded and S.D.
Harrison's No. 2 Denman, 1,650 ft. from S and 355 ft. from E Sec. 10, Blk. 30, Twp. 1s, T.&P. Sur. ..... Cmtd. csg. 2,525 ft.
Myers et al's No. 1 Denman, 2,305 ft. from S and 2,320 ft. from E Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur. .... S.D. 1,030 ft.
Sinclair-Prairie Oil Co.'s No. 2 Dodge, 2,313 ft. from S and 300 ft. from W, Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. ..... Drlg. 615 ft.
Wallace et al's No. 1 Belt, 1,960 ft. from N, 2,640 ft. from W, Sec. 12, Blk. 30-1s, T.&P. Sur. ..... T.P. 2,480 ft.; T.D. 2,855 ft.; rig burned; swabbed 35 bbls. day.

IRION COUNTY

Apollo Oil Co.'s No. 4 Nutt, 504 ft. from N and 1,562 ft. from W of Subd. No. 6, Gonzales County School Land ..... Cellar.
Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W, Sec. 3,081, Blk. 28, H.&T.C. Sur. ..... Drlg. by tools 7,535 ft.
Johnson's No. 1 Tankersley, 1,340 ft. from S and 150 ft. from E, Sec. 726, F. Sockstedt Sur. ..... Location.
Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... S.D. 7,420 ft.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... S.D. 1,005 ft.; temp. abnd.
Johnson's No. 1 Huddleston, 165 ft. from S and W of N half of N half of Sec. 39, Blk. 18, T.&P. Sur. ..... Spudded and S.D.
J. M. Johnson's No. 1 Swann, 6,150 ft. from S and 1,550 ft. from E, I. Miley Sur. ..... Drlg. 150 ft.
Smart & Reynolds' No. 1 Reynolds, 2,500 ft. from N and 150 ft. from W, Sec. 2, W. T. Scott Sur. No. 3. .. Machine.
C. S. Spelling et al's No. 1 Lillie, 200 ft. from N and W Sec. 4, E. Miller Sur. No. 2 ..... S.D. 1,520 ft.
Transcontinental Prod. Co.'s No. 1 Rust, 5,800 ft. N and 995 ft. W of SE cor. J. J. Hughes Sur. 556 ..... Spudded.
Young et al's No. 1 Harrell, 150 ft. from S and E of N half of Sec. 8, O.A.L. Sur. ..... Location.

LOVING COUNTY

Eppenauer's No. 1 Freels, 1,263 ft. from NE, 410 ft. from NW, Sec. 92, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,915 ft.
Covey et al's No. 1 Wheat, 2,310 ft. from SW, 330 ft. from SE, Sec. 3, Blk. 2, W.&N.W. Sur. ..... S.D. 1,155 ft.
Eppenauer Drlg. Co.'s No. 1 Allen, 465 ft. from NE and SE, Sec. 4, Blk. 2, W.&N.W. Sur. ..... S.D. 2,150 ft.
Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S, Sec. 46, Blk. 53, T.&P. Sur. ..... S.D. 810 ft.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW, Sec. 79, Blk. 33, H.&T.C. Sur. ..... T.D. 4,275 ft.
Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W, Sec. 6, Blk. 56, Twp. 1, T.&P. Sur. .. S.D. 2,280 ft.
Martin's No. 1 Freels, 3,514 ft. from NE and 412 ft. from NW of Sec. 92, Blk. 1, W.&N.W. Sur. ..... S.D. 3,305 ft.
Martin et al's No. 1 Brookfield, 330 ft. from N and W, Sec. 30, Blk. 29, P.S.L. ..... Bldg. rig.
Miller et al's No. 1 Ferguson, 990 ft. from N and E of Sec. 44, Blk. 29 ..... S.D.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW, Sec. 66, Blk. 1, W.&N.W. Sur. ..... S.D. 4,380 ft.; made one flow est. 50 bbls.; cleaning out.
Thomas' No. 1 Wheat, 2,310 ft. from NW, 990 ft. from NE, Sec. 83, Blk. 1, W.&N.W. Sur. ..... S.D. 2,285 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... S.D. 2,860 ft.

PECOS COUNTY

Anderson's No. 1 Lee Fever, 330 ft. from N and W of Sec. 78, Blk. 8, H.&G.N. Sur. ..... S.D. 2,037 ft.
Black et al's No. 1 Pecos Valley, 1,037 ft. from SE, 433 ft. from SW, Sec. 36, Blk. 3, H.&T.C. Sur. ... T.D. 1,720 ft.; to abandon.
Cardinal Oil Co.'s No. 2-G Tippett, 150 ft. from S and E, Sec. 63, Blk. 194, G.C.&S.F. Sur. ..... Location.
Corvette Oil Corp.'s No. 8 H. Monroe, 1,040 ft. from E line and 150 ft. from N line of Sec. 39, G.C.&S.F. Sur., Blk. 194 ..... Location.
Culberson Bros.' No. 8-B Monroe, 700 ft. from N and 790 ft. from E, Sec. 39, Blk. 194, G.C.&S.F. Sur. .... Location.
Gulf Prod. Co.'s No. 34 Yates, 13,415 ft. from W and 330 ft. from S of Runnells County School Land ..... Drlg. 775 ft.
Hampton et al's No. 1 Byrne, 1,980 ft. from NW and 1,500 ft. from NE, Sec. 54, Blk. 10, H.&G.N. Sur. .... T.D. 1,395 ft.; T.P. 1,356 ft.; S.D. for tubing.
Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... S.D. 1,454 ft.; to plug.

PRESIDIO COUNTY

Sadler et al's No. 1 Bledsoe, 2,640 ft. from N and W Sec. 15, Blk. 354, G.C.&S.F. Sur. ..... Spudding 150 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,370 ft. fro mS and 1,000 ft. from E, Sec. 12, Blk. 2 ..... Fishing 8,367 ft.
Big Lake Oil Co.'s No. 7-C University, 1,570 ft. from W and 725 ft. from S, Sec. 25, Blk. 9 ..... Drlg. 2,450 ft.
Group Oil Corp.'s No. 5-B University, 2,700 ft. from S and 1,775 ft. from W, Sec. 36, Blk. 9 ..... Spudded 72 ft.

REEVES COUNTY

F. McDorman et al's No. 1 Ray Roberts et al, 2,310 ft. from S and E lines of Sec. 22, Blk. 59, P.S.L. Sur. ... S.D. 140 ft.
Southern Star Oil Co.'s No. 1 Wright, 1,320 ft. from S and W, Sec. 58, Cassel's Sur. ..... S.D. 75 ft.; bldg. derrick.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur... S.D. 5,044 ft.

RUNNELS COUNTY

Blue Bonnett Oil Co.'s No. 1 McMillan, 1,368 ft. from N and 660 ft. from W, Sec. 22, N. Travis Sur. ..... Set 10-in. csg. 1,450 ft.
Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Hell Sur. No. 519 ..... S.O. 3,417-20 ft.; S.D. 3,600 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Fishing 5,410 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,302 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... S.D. 5,580 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... S.D. 5,053 ft.

SCURRY COUNTY

G. E. Dickman et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 375, Blk. 2, H.&T.C. Sub. ..... S.D. 5,050 ft.
W. S. Guthrie's No. 1 Snyder National Bank, 330 ft. from N and 2,310 ft. from E of Sec. 115, Blk. 97, H.&T.C. Sur. ..... Location.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and S.D.
Seifert & Dibbie's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... S.D. 4,670 ft.

TAYLOR COUNTY

Eastland Oil Co.'s No. 1 King, 150 ft. from S and E, Lot 27, Willis Sur. ..... Drlg. 2,250 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... S.D. 2,269 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... S.D. 3,150 ft.; moved off tools.
Miller Bros.' No. 1 Allison & Burke, C NW Sec. 10, Blk. 176, T.&P. Sur. ..... S.D. 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,153 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F. Sur. S.D. 6,120 ft.
Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... S.D. 2,545 ft.
Sides et al's No. 1 Phelps, 2,157 ft. from N and 2,482 ft. from W, Sec. 5, G. W. Hurley Sur. ..... Drlg. 1,200 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 1,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... S.D. 760 ft.; S.O. and gas 735 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur.... S.D. 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... S.D. 200 ft.

UPTON COUNTY

Farley et al's No. 1-B Lone, 2,310 ft. from N and E, Sec. 36, Blk. 1, M.-K.-T. Sur. ..... T.P. 2,183 ft.; plugged back to 2,304 ft.; pumped 109 bbls. in 3 hrs.; shut down.

VAL VERDE COUNTY

Couch et al's No. 1 J. P. Yoas, 1,300 ft. from the N line and E line of Sec. 31, Blk. 1, I.&G.N. Sur. ..... S. D. 220 ft.
Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... S.D. 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev 2,130 ft. ..... S.D. 6,730 ft.

WARD COUNTY

Abell Bros. et al's No. 1 Smith, 330 ft. from NE and NW, Sec. 4, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,025 ft.
Bradford & Bentley's No. 1 B. Carson, 1,650 ft. from the NE line and 990 ft. from the SE line of Sec. 26, H.&T.C. Sur., Blk. ". ..... T.D. 860 ft.
Eastland Oil Co.'s No. 1 Weiss, 2,365 ft. from SE and SW, Sec. 4, Blk. 34, H.&T.C. Sur. ..... Drlg. 2,285 ft.
Eppenauer's No. 1 Purcell, 365 ft. from SW and 1,650 ft. from SE of Sec. 17, Blk. 14, H.&T.C. Sur. ..... T.D. 2,740 ft.
Eppenauer Drlg. Co.'s No. 1 Townsend-Moore, 990 ft. from SE and 330 ft. from SW, Sec. 17, Blk. 34, H.&T.C. Sur. ..... Spudded and S.D.
H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW, Sec. 13, Blk. 5, H.&T.C. Sur. ..... S.D. 2,145 ft.
Gulf Prod. Co.'s No. 11 Hutchings, 330 ft. from N and Leydecker et al's No. 1 Bennett, 2,310 ft. from NW and NE, Sec. 16, Blk. 34, H.&T.C. Sur. ..... Location.
990 ft. from W of 370 acres in S half Sec. 5, Blk. F .... Drlg. 275 ft.
Massie et al's No. 1 Stewart, 330 ft. from SW and SE, Sec. 12, Blk. 14, H.&T.C. Cur. ..... Drlg. 2,330 ft.
Moran & Burkhart's No. 2 J. T. Sweatt et al, 3,510 ft. from SW, Sec. 1, J. Howe Sur. ..... S.D. 1,510 ft.
Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,302 ft. from SE, Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 2,201 ft.; T.P. 2,192 ft.; connecting up.
R. F. Owen's No. 1 Lea, 1,344 ft. from NW and 4,532 ft. from SW, Sec. 1, J. Howe Sur. ..... S.D. 1,670 ft.
Plains Prod. Co.' and Simms Oil Co.'s No. 1 Benton Land Co., 440 ft. from the SE and 440 ft. from SW lines of Sec. 26, W.&N.W.R.R. Sur., Blk. 1 ..... Drlg. 1,275 ft.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ..... S.D. 3,602 ft.
Renaud-Prettyman's No. 1 University, 330 ft. from N and E Sec. 4, Blk. 16 ..... Drlg. 430 ft.
Richardson et al's No. 8 O'Brien, 1,372 ft. from N, 330 ft. from W, Sec. 5, Blk. F ..... Drlg. 2,630 ft.
Richardson et al's No. 9 O'Brien, 1,112 ft. from N and 990 ft. from W Sec. 5, Blk. F ..... Drlg. 1,580 ft.
Rixford et al's No. 1 Green, 330 ft. from NW and SW Sec. 4, Blk. 34, H.&T.C. Sur. ..... S.D. 2,115 ft.
Sturm-Simms Oil & Gas Co.'s No. 2 Jones, 1,650 ft. from NE and 330 ft. from SE, Sec. 25, Blk. B-29, P.S.L.... Material.
Thomas et al's No. 1 Bennett, 2,310 ft. from NE and SE, Sec. 16, Blk. 34, H.&T.C. Sur. ..... Rigged up.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ..... S.D. 755 ft.

WINKLER COUNTY

Adams et al's No. 1 Scarborough, 660 ft. from N and E Sec. 1, Blk. 77, P.S.L. ..... Cmtd. 6⅝-in. csg. 2,665 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending May 16

BRISCOE COUNTY

Company, well, farm name, section and block— Remarks:
Humble O. & R. Co.'s No. 1 C. Adair est., 2,500 ft. from N line, 2,100 ft. from E line, Sec. 7, Blk. G-6..... Coring 3,625 ft.

CARSON COUNTY

Danciger's No. 4 Byrum, 330 ft. from N and E, Sec. 188, Blk. 3, I.&G.N. Sur. ..... Cellar.
H. A. M. Oil Co.'s No. 2 Cooper, 330 ft. from S and E, Sec. 5, Blk. 9, I.&G.N. Sur. ..... Location.
Pulse-Shell Pet. Corp.'s No. 1 Byrum, 330 ft. from N and W, W½ NE, Sec. 188, Blk. 3, I.&G.N. Sur. .... Drlg. 1,225 ft.
Skelly Oil Co.'s No. 10 E. Schaffer, 440 ft. from S, 2,640 ft. from E of N half, Sec. 189, Blk. 3, I.&G.N. Sur.... Material.
Skelly Oil Co.'s No. 17 West Schaffer, 1,320 ft. from S, 440 ft. from E, Sec. 87, Blk. 4, I.&G.N. Sur. ..... Standardizing 2,260 ft.
Texoma Nat. Gas Co.'s No. 1-E Dauer, 1,335 ft. from S, 1,327 ft. from E, Sec. 73, Blk. 4, I.&G.N. Sur. ..... Set 8¼-in. csg. 2,285 ft.
Texoma Nat. Gas Co.'s No. 1-T Jordan, 1,382 ft. from S, 1,324 ft. from E, Sec. 83, Blk. 4, I.&G.N. Sur..... Spudded.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands ..... T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. ..... S.D. 2,508 ft.
Downey et al's No. 1 Beasley, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur. ..... Rigged up.

DEAF SMITH COUNTY

Western Union Oil Co.'s No. 1 Farwell, C NW, Sec. 18-3n-2e ..... S.D. 275 ft.

GRAY COUNTY

Back & Barber's No. 1 Back, 660 ft. from S, 330 ft. from W, Sec. 140, Blk. 25, H.&G.N. Sur. ..... S.D. 2,428 ft.
Boyes et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. ..... Drlg. 530 ft.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,805 ft.
Continental Oil Co.'s No. 1-A Wright, 330 ft. from S and E of E½ NW, Sec. 13, Blk. 3, I.&G.N. Sur. .... S.D. 2,080 ft.
Danciger O. & R. Co.'s No. 9 Powell-Beck, 330 ft. from N, 1,605 ft. from W, Sec. 28, Blk. B-2, H.&G.N. Sur... Rig.
Danciger O. & R. Co.'s No. 2 William, 150 ft. N, 990 ft. from W S half NW, Sec. 7, Blk. 1, A.C.H.&R. Sur.... Drlg. 1,745 ft.
Elbar Corp.'s No. 1 Sethings, 330 ft. from S and E, Sec. 13, Blk. A-9, H.&G.N. Sur. ..... Rig.
Foster's No. 1 Webb, 330 ft. from S and W, Sec. 43, Blk. 25, H.&G.N. Sur. ..... S.D. 2,390 ft.; show oil 2,375 ft.
Graham et al's No. 1 Barrett, 990 ft. from N, 330 ft. from E, Sec. 112, Blk. 3, I.&G.N. Sur. ..... Standardizing 1,180 ft.
Granite Prod. Co.'s No. 1 Chapman, 275 ft. from N line, 110 ft. from W line, S½ SW, Sec. of Blk. 26, H. &G.N. Sur. ..... Drlg. 2,565 ft.; show gas 2,400-2,535 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. 2-B, H.&G.N. Sur. ..... Drlg. 3,050 ft.
Jewel Oil Co.'s No. 1 Meers, 330 ft. from S and W, NW SW, Sec. 106, Blk. 3, I.&G.N. Sur. ..... Fishing 3,325 ft.
Mazda-Shell's No. 2 Worley Reynolds, 660 ft. from S and E of NE, Sec. 35, Blk. 3, I.&G.N. Sur. ..... Rigging up cable tools.
Mid-Kansas O. & G. Co.'s No. 1 Webb, 990 ft. from N, 330 ft. from W, NE Sec. 61, Blk. 25, H.&G.N. Sur. .. Drlg. 1,790 ft.
Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur. ..... Fishing 2,635 ft.
Nabob Oil Co.'s No. 1-E Morse, 330 ft. from S and W, W½ SE, Sec. 67, Blk. 25, H.&G.N. Sur. ..... Rigging up standard tools.
Operators Royalty & Prod. Co.'s No. 2 Arnold, 330 ft. from S and W, Sec. 149, Blk. 3, I.&G.N. Sur. ..... Rig.
Operator's No. 1 Ferguson, 330 ft. from N and E of NW, Sec. 34, Blk. B-2, H.&G.N. Sur. ..... T. D. 3,076 ft.; running tubing.
Parton & Holt's No. 2 Morse, 330 ft. from W, 250 ft. from N, W½ SW, Sec. 5, Blk. 26, H.&G.N. Sur. ..... Drlg. 975 ft.
Phillips Pet. Co.'s No. 6 Wood-Wright, 330 ft. from N and E, Sec. 13, Blk. 3, I.&G.N. Sur. ..... S.D. 2,870 ft.; made 300 bbls. oil in 24 hrs.
Pulse-Shell Pet. Corp.'s No. 1 Culler, 330 ft. from S and E, Sec. 173, Blk. 3, I.&G.N. Sur. ..... Spudded.
Pulse-Shell's No. 1 Brown, 290 ft. from N, 250 ft. from E of NW, Sec. 128, Blk. 3, I.&G.N. Sur. ..... Rig.
Saulsbury et al's No. 1 Davidson, 330 ft. from S and W, Sec. 87, Blk. B-2, H.&G.N. Sur. ..... Drlg. 1,130 ft.
Saunders et al's No. 2 Sullivan, 822 ft. from W, 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Will plug back to 3,275 ft. and shoot.
Shamrock O. & G. Co.'s No. 3 Saunders, 330 ft. from S and W, Sec. 40, Blk. 3 ..... Standardizing 2,320 ft.
Skelly Oil Co.'s No. 8 East Schaffer, 220 ft. from N, 440 ft. from W, Sec. 172, Blk. 3, I.&G.N. Sur. ..... Fsg. 3,256 f.t; T.P. 3,212 ft.; 1,400 ft. oil in hole.
Skelly Oil Co.'s No. 9 East Schaffer, 1,320 ft. from S, 440 ft. of N½, Sec. 189, Blk. 3, I.&G.N. Sur. ..... T.D. 2,460 ft.; underreaming 6-in. csg.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. ..... Location.
Tedesco Oil Co.'s No. 3 Morse, 330 ft. from N and E of NE SW, Sec. 1, Blk. 26, H.&G.N. Sur. ..... Bldg. rig.
The Texas Co.'s No. 7 Wright, 330 ft. from N and W, Sec. 13, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,510 ft.; 7,000,000 ft. gas.
The Texas Co.'s No. 9 Williams, 150 ft. from S, 990 ft. from N half NW, Sec. 7, Blk. 1, A.C.H.&B. ..... Drlg. 1,680 ft.
The Texas Co.'s No. 10 Cook-Faulkner, 330 ft. from S, 1,605 ft. from W, Sec. 29, Blk. B-2, H.&G.N. Sur.... Rig.
Travis' No. 3 Back, 330 ft. from S, 2,300 ft. from E, Sec. 44, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,280 ft.
Weltzel Oil Co.'s No. 2 Morse, 330 ft. from S and E of N half NW, Sec. 67, Blk. 25, A.&G.N. Sur. ..... Rigging up standard tools.

HEMPHILL COUNTY

Hoover's No. 1 Hoover, 350 ft. from N, 1,200 ft. from E, G. S. Hood Sur. ..... To deepen old well; T.D. 5,055 ft.; rigging up.

HUTCHINSON COUNTY

Baso's No. 1 Moore, 360 ft. from S, 330 ft. from E, in 80 ac. in NW, Sec. 21, Blk. M-31, T.C.R.R. Sur. ..... T.D. 3,030 ft.; shot 100 qts. 3,028-64 ft.; hole bridged.
Combination O. & G. Co. and Alspaugh's No. 1 Johnson, 330 ft. from S line, 330 ft. from E line, NW SW, Sec. 4, Blk. Y, A.&B. Sur. ..... Drlg. 2,625 ft.
Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. ... S.D. 450 ft.
Holmes & Newblock's No. 2 Moore-Langdon, 330 ft. from N and W, Sec. 125, Blk. 4, I.&G.N. Sur. ..... Moving in rig.
Huber Pet. Co.'s No. 1-A Weatherly, 330 ft. from N and W, Sec. 26, Blk. Y, A.&B. Sur. ..... Drlg. 1,925 ft.
Liner Drlg. Co.'s No. 1-D Johnson, 330 ft. from N and E, Sec. 6, Blk. 1, B.&B. Sur. ..... Plugged back to 3,146 ft.
Pharis Oil Co.'s No. 5 Smith, 660 ft. from N and W, SW, Sec. 14, Blk. Y, M.&C. Sur. ..... Spudded.
Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

MOORE COUNTY

Dogie Oil Co.'s No. 1 Greenwald, 330 ft. from N and W, Sec. 277, Blk. 44, H.&T.C. Sur. ..... S.D. 205 ft.
Dana O. & G. Co.'s No. 1 Robertson et al, 330 ft. from S and E, Sec. 165, Blk. 3-T, T.&N.O. Sur. ..... Cellar.
Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Rig up.
Magnolia Pet. Co.'s No. 1 Nield, 330 ft. from S and E, N½, Sec. 361, Blk. 44, H.&T.C. Sur. ..... Show oil 3,421 ft.; T.D. 3,646 ft.; plugged back 3,626 ft.; to shoot.
Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Sunset Oil Co.'s No. 1 Dore, 330 ft. from N and W, W½. Sec. 318, Blk. 44, H.&T.C. Sur. ..... Fishing 3,426 ft.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.
Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. ..... Drlg. 3,725 ft.

PARMER COUNTY

Magnolia Pet. Co.'s No. 1 Wilson, 330 ft. from N and W, SE, Sec. 73, H. Kelly Sur. ..... Set 9-in. pipe 4,446 ft.

POTTER COUNTY

Red River Gas Co.'s No. 7-A Bivins, center SW, Sec. 38, Blk. M-20, G.&M. Sur. ..... Drlg. 2,115 ft.; show gas 2,090 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... T.D. 3,990 ft; to set 8-in. csg.
Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... S.D. 2,690 ft.

WHEELER COUNTY

Devore & Robinson's No. 1 Sitter, 2,310 ft. from S and E, E½, Sec. 33, Blk. 24, H.&G.N. Sur. ..... S.D. 2,559 ft.; 15,000,000 ft. gas.

Crude Production Decline in Oklahoma

Oklahoma City Declines 19,000 Bbls. and the Whole State 14,000 Bbls. per Day. Renewed Activity in Southern Areas

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oil production in Oklahoma during the week ending May 14 averaged approximately 442,300 bbls. a day compared to 456,215 bbls. the previous week, a decline of approximately 14,000 bbls. a day. The Oklahoma City Field averaged 116,185 bbls. a day, a decline of 19,000 bbls. a day from the previous week.

The new wildcat well on a community block, No. 1 Gray, NE cor. SW Section 25-6-4, Pottawatomie County, has been taken over by the Gypsy Oil Co., which has considerable acreage in the block and is building a pipe line into the well. When last opened it was showing 135 bbls. of oil an hour from the pay at 3,478-90 feet. The Gypsy Oil Co. expects to complete the pipe line during the week and put the well on production. It will be produced at the rate of 50 bbls. a day, under proration.

The only new operations in the area are locations for the Magnolia Petroleum Co.'s No. 1 State, NE cor. NW Section 36-6-4, and Arrow Drilling Co.'s No. 1 in the NW cor. SE SE Section 26-6-4.

Pure Oil Co.'s No. 1 Unglesby-Pinkston, in approximately the SE cor. NW Section 1-15-6, Lincoln County, on a narrow strip of acreage which was originally completed as a gas well in the Wilcox sand at 3,648-55 feet and was drilled to 3,705 feet, where it mad 75 bbls. of oil in two hours on the last gauge, and at the rate of 21,000,000 feet of gas a day, is being killed by water in an attempt to land casing at approximately 3,700 feet to bradenhead the gas and produce the oil outside of the casing. The company plans to make a combination gas and oil well.

The Gypsy Oil Co.'s No. 1 Pinkston, near the SE NW Section 1-15-6, the west offset to the Pure Oil Co.'s well, is rigging up to clean out. It was completed as a gas well in February, 1925, for 13,000,000 feet a day from the Wilcox sand at 3,650-60 feet. The gas well will be drilled deeper in search of the oil found in the Pure Oil Co.'s well.

Another active area in the State is the territory surrounding the Carter Oil Co.'s No. 1 Monett, SW cor. Section 35-7-4, the discovery well in the Sacred Heart area of Pottawatomie County, which has been averaging around 600 bbls. a day on the gas lift from the Simpson sand at a total depth of 4,262 feet. Three offsets are drilling to the test which are expected to be completed during the next week.

Deep Test in Grady County

The test in Grady County being drilled by the Carter Oil Co. is creating considerable interest. It is located in the SE cor., Section 12-3-7w, about 4 miles southwest of Rush Springs. It is expected to be a deep test as a 112-foot steel derrick has been erected. The well will be drilled to the Wilcox sand and is on a block of approximately 2,000 acres. Other companies interested in leases in the 2,000-acre block include The Texas Company, Magnolia Petroleum Co. and Gypsy Oil Co. It will be the first deep test in the southwestern part of the county.

Another test well in the same vicinity is Schoonmaker and others' No. 1 Slayton, in Section 26-4-7w, which is rigged up ready to spud. It is also located on a block of 2,000 acres on the Slayton ranch and scheduled to be drilled a total depth of 3,500 feet.

Other tests drilled in this part of the county during the last 10 years include the Cosmos Oil Co.'s No. 1 in the NW cor. NE NE, Section 22-3-8w, which was drilled to a total depth of 2,570 feet. While a commercial well did not result from the drilling of this well, it found several showings of oil and gas. Later a test well was drilled by Cowden and others in NE, Section 11-3-8w, to a total depth of 3,010 feet which also found several showings of oil and gas while drilling the test. Another test was drilled by J. Briscoe in the SW cor. SE SE, Section 36-3-8w, to a depth of 2,507 feet. It found a body of sand but it did not make a commercial producer.

Core Drilling in West

Carter Oil Co. has two core drill units at work in the western part of Oklahoma in Roger Mills County on some large blocks of acreage the company purchased last year. The Carter Oil Co. purchased two blocks of acreage in that district from Roy Johnson, one of these blocks was located in Townships 11 and 12, in Ranges 21 and 22w, and extending over into Beckham County.

Some deep tests have been drilled in Roger Mills County and in Beckham County. Ute Oil Co.'s No. 1 Williams, C SW, Section 23-12-24w, Roger Mills County, is shut down at a total depth of 5,150 feet. L. C. Hivick's No. 1 Davis, C NW NE, Section 4-11-26w, Roger Mills County, was drilled to a total depth of 3,420 feet. In Beckham County, White and others' No. 1 Green, SW cor., Section 34-10-24w, was drilled a total depth of 3,575 feet. Some of these deep tests are believed to have been drilled to the granite.

Seminole Production

The production from the Greater Seminole area for the week ending May 13 was approximately 138,460 bbls. a day. The Seminole Field, which includes the first 12 pools listed below, averaged 99,145 bbls. daily. The field is being produced at 44 per cent of its potential.

Pool—	Bbls.
Little River	17,690
East Little River	2,965
Carr City	11,395
Maud	2,070
Mission	7,190
Bowlegs	12,755
Earlsboro	13,915
South Earlsboro	2,170
East Earlsboro	13,025
Seminole	11,885
East Seminole	1,050
Searight	3,035
Total	99,145
Allen	8,310
Asher	525
Wanette	3,970
Konawa	4,420
Sasakwa	1,730
St. Louis-Pearson	20,360
Grand total	138,460

Showing in Washita County

A wildcat test in Washita County, in the southwestern part of the State, was showing oil. Prince & Clark and others' No. 1 Dock, SW cor., Section 21-8-18w, was showing oil at a total depth of 1,528 feet in sandy shale. The 10-inch casing was being underreamed to the oil showing. The test was started about two years ago and has been drilling intermittently since. Interested in the test are the Marion Oil Co., Patrick Drilling Co., Eason Oil Co. and the Seminole Supply Co.

Another wildcat test in the same county, Cooper & Terhune's No. 1 Blocker, NW cor., Section 29-8-19w, is shut down at 2,740 feet. Miley Petroleum Co.'s No. 1 Chapman, NE cor. SW, Section 23-9-17w, Washita County, is a rig.

In other southern Oklahoma counties the most active area is in Stephens County where four new locations were announced during the week: English Drilling Co.'s No. 1 C. E. Smith, SE cor. NE NE SW, Section 11-2s-8w; Meridian Oil Co.'s No. 1 P. H. Peck, SW cor. SW SW NW, Section 1-2s-8w; R. W. King's No. 1 School Land, NE cor. NW, Section 36-1s-9w, and E. D. Gillett and others' No. 1 G. Cooley, NW cor. SE NW, Section 17-2s-8w.

Two other tests were nearing completion: G. L. Pace's No. 10 Watkins, NE cor. SE SE, Section 21-2s-7w, was preparing to drill out the cement plug to test sand topped at 1,721 feet and Curtis Oil Co.'s No. 3 Dare, NE cor. NW SE, Section 2-2s-8w, was cementing casing to test a gas sand at 1,415-40 feet.

Indications point to revival of activity in the southeast extension in the Tatums Field, in Carter County. About a year ago F. Gouin and others' No. 1 Burton, in Section 31-1s-2w, drilled the discovery well in the extension area. Robb and others' No. 1 Burton, NE cor. SW NE, Section 31-1s-2w, is a new location in the district.

On the east side of the Tatums Field Ratliff and Colvin's No. 1 Ratliff, NW cor. NE NW SW, Section 19-1s-2w, is a new location. This is northwest of a dry hole completed by Trevelyn Oil Co.

Acreage is being assembled in Stephens County and the play may extend into Cotton County. Wildcat tests may be started on these blocks. E. D. Gillett is assembling a block around Section 23-1-8w, northeast of the Dunan Field. R. W. King has purchased two 80-acre tracts of school land in NW Section 36-1s-9w, south of the Empire Field, and plans to drill a well somewhere in the E half NW, Section 36-1s-9w.

During the week the only active drilling operation in Section 2-11-3w, in the north end of the Oklahoma City Field was completed. Several drilling wells are shut down and have been for some time. Western Bond & Share Co.'s No. 1 Meyers, SW cor. SW NW NW, Section 2-11-3w, flowed over the top of the rig May 12, and was then shut in without gauging. It was estimated that the well would do 1,200 bbls. of oil an hour and about 60,000,000 feet of gas a day. The total depth is 6,405 feet and the 6-inch casing was landed at 6,275 feet. The well was started in November, 1930, by the Tampa Oil & Refining Co. as No. 1 Denham, and was later taken over by the Western Bond & Share Co. Drilling operations were delayed by fishing jobs and litigation. In February of this year the rig was skidded and a new hole drilled after the old hole had been lost at a total depth of 5,604 feet.

A meter has been installed on the Independent Pipe Line Co.'s pipe line running from the Oklahoma City Field to the Phillips Petroleum Co.'s refinery at Okmulgee, with the view of checking shipments of crude oil from the field against the tank measurements. The checking of the oil shipped in the pipe line will be conducted by the umpire's staff and the employes of the Phillips Petroleum Co. which own and operate the pipe line.

Another well completed in the Oklahoma City Field during the week, the Capitol Producing & Refining Co.'s No. 1 Hills, SE or. NE SE, Section 4-11-3w, near the business district of the city, flowed 162 bbls. of oil in two hours and was shut in. It found the Wilcox sand at 6,478-6,530 feet. It will take a potential test in a few days. The well was completed in January and was shut in until a few days ago.

The Oklahoma City Field continues to be the most active area in the State, a survey of the field indicating that there are 26 tests drilling, eight waiting for the first string, and six for the last string; six were shut down, nine are locations and rigs. There were 36 rigs up and shut down for the 58 days of proration time and six testing but not completed.

Production and Shipments

According to the umpire's report the demand for crude oil during the month of April from the Oklahoma City Field was steady and showed little change from the previous month. The total pipe line shipments from the field, which is still the largest in the State, were 3,041,440 bbls. compared to March shipments of 3,197,906 bbls. April production totaled 3,079,085 bbls., compared to 2,967,134 bbls. for March. The net allowable for April was 3,009,451 bbls. compared to 2,390,845 bbls. in March. There were a total of 866 wells as of May 1, which is an increase of 20 over the previous month. The April adjusted potential of the field was 3,573,473 bbls. compared to 3,476,369 bbls. of the month before. The following table shows the status of each lease in the field:

Company—	Wells	April— Prod.	Ship.
Acme	1	11,115	11,205
Addition	1	13,322	12,224
American	1	8,576	8,523
Anderson & Kerr	1	7,272	7,268
Anderson & Prich.	29	128,680	125,898
Argood	1	3,683	4,101
Blackstock	1	1,725	1,584
Blackwell	5	22,728	7,778
British-American	9	63,694	64,877
California	1	3,617	4,677
Capitol P. & R.	3	15,329	13,227
Capitol Prod. Tr.	1	9,809	10,477
Century	5	32,221	41,685
Champlin	11	39,510	40,916
Chatham	2	20,146	20,158
Coline	35	43,709	41,607
Continental	12	37,835	44,440
Courter	1	4,177	4,186
Cromwell-Franklin	32	107,717	115,344
Dabney-Johnston	1	3,568	3,568
Denver	6	30,955	31,544
Denver-Indian	1	7,052	8,106
Den.-Rey.-Plains	1	13,532	15,494
Dengail	4	23,013	25,844
Donleon	2	12,857	15,385
Eason	3	15,260	13,164
Empire	3	14,381	14,007
Franco-Domi.	1	2,866	4,306
Wirt Franklin	39	128,885	129,436
Government Pet.	2	8,763	11,842
Great Southern	1	2,479	3,781
Hall & Briscoe	2	6,190	13,302
Harrell-Davis	1	1,467	1,316
Holman et al	1	5,675	2,900
I. T. I. O.	293	698,219	695,000
Kedberg	1	4,229	2,703
Kessler	1	.....	.....
Lassen & Corn	1	6,285	7,860
Mabee	4	38,560	38,591
Marco	1	.....	.....
Marshall	3	.....	.....
McArthur	8	22,828	17,400
Mid-Kansas	7	8,269	5,486
Minnehoma	1	12,723	18,480
Morgan	3	12,134	11,317
Ocate	3	6,985	6,965
Oils, Inc.	4	21,757	22,290
Okla. City Pet.	1	7,230	7,099
Paine & Johnson	1	8,581	8,281
J. H. Peacock	3	19,354	18,252
Phillips Pet. Co.	68	502,205	506,174
Plains	2	11,878	11,691
Rajah	1	10,164	9,448
Refiners Prod.	2	2,016	1,364
Reynolds & Unruh	1	6,445	8,179
Russell	2	17,281	16,425
Scott & Co.	2	5,745	8,407
J. C. Shaffer	6	23,141	23,564
Shell	8	8,767	8,372
Sinclair Prairie	68	117,553	115,868
Skelly	23	81,350	71,538
Slick-Urschel	107	441,757	43,317
Springrose	1	8,998	9,414
Stauffer	1	5,868	6,648
Sunray	4	40,695	8,234
Watchorn	1	5,904	3,134
Westgate	7	57,370	57,103
Wilcox	10	6,905	.....
Wrightsman	2	7,628	7,866
Total	886	3,079,085	3,041,440

Revised Potentials

During the first 10 days of May the pipe line shipments from the Oklahoma City Field averaged approximately 105,523 bbls. daily, while the production from the same field, averaged approximately 145,000 bbls. daily for the same period.

Revised potentials on wells in the Oklahoma City Field have been compiled by the umpire's staff, which show that only the Wilcox sand wells in the field were

given an increase in potential, while other producing zones were cut down. The last witnessed potential gauge was made last November and the one previous to that was made in April, 1931.

In the Silicious lime area in April, 1931, there were 45 wells with a total potential production of 43,831 bbls. which dropped to 23,754 bbls. from 47 wells in November. This area has been exempt and a flat allowable fixed for all wells, only 28 of which are now producing. All the others have been either plugged back or abandoned.

The four wells in the Fault zone on the extreme east side of the field had a potential of 5,128 bbls. a day in April, 1931, and this declined to 3,078 bbls. a day in November.

In the Simpson sand zone 375 wells had a rated potential of 712,922 bbls. in April, 1931, and in November the same zone had 408 wells with rated potential of 653,346 bbls.

In the Wilcox sand zone there are now 346 wells producing, 24 of these wells having no potential. In April, 1931, 209 wells producing from the Wilcox sand had a rated potential of 2,056,361 bbls. and in November there were 322 wells, with a total potential rated at 2,987,869 bbls.

Ray M. Collins, state umpire, has advised all operators in the Oklahoma City Field, that contempt proceedings will be filed against anyone failing to advise the umpire's office of intention to complete new wells in the field or open wells for testing before the potential test is given. The Oklahima Corporation Commission's order covering this procedure was quoted in an open letter sent to all operators.

Part of the order states: "No producer shall open his well for initial test production unless a representative of the umpire is present. In the event that the umpire's representative is unable to be present, the umpire will designate a witness from an offset operator or any other disinterested party to be present at the taking of any initial test."

Cotton County

Wilson-Kenette's No. 1 Wilson, SW cor. NW NW, Section 6-2s-8w, is a rig. King and others' No. 1-A School Land, NE cor. NW, Section 36-1s-9w, is a location.

Carter County

Robb and others' No. 1 Burton, NE cor. SW NE, Section 31-1s-2w, is a location.

Creek County

Johnson Oil & Refining Co.'s No. 1 Evans, NE cor. SE NW, Section 29-19-9, was spudding. Hazlewood Oil Co.'s No. 1 Rentie, NE cor. SW SE, Section 32-19-9, was spudding. E. L. Jillson and others' No. 1 Starr, SE cor. NW, Section 18-15-8, is a rig. McCurry and others' No. 3 Watkins, NW cor. SE SW, Section 28-17-11, was spudding. Atlantic Oil Producing Co.'s No. 1 Harjo, NE cor. SE, Section 27-14-10, is a location. Witten and Wilcox's No. 1 A. Harris, NW cor. SW NE, Section 12-17-10, is a rig. Atlantic Oil Producing Co.'s No. 1 Harjo, SE cor. NE, Section 27-14-10, made 140 bbls. of oil from the Meisner sand at 3,250-55 feet. Barnsdall Oil Co.'s No. 1 Davis, SW cor. SE NW, Section 21-19-9, made 1,500,000 feet of gas a day from sand at 1,973-78 feet. Total depth was 2,220 feet. H. S. Burch and others' No. 1 Coffee, Section 2-19-9, was abandoned at 1,218 feet. Gled Oil Co.'s No. 4 Hamilton, NW cor. NE, Section 29-19-9, swabbed and flowed 300 bbls. of oil in 16 hours from sand at 2,130-64 feet.

McIntosh County

J. H. Rebolt and others' No. 1 Smith, CSL NW SW, Section 22-12-14, was abandoned at 2,172 feet, after finding a showing of oil at 2,115-69 feet.

Marshall County

Owen-Cooper's No. 1 McDuffee, NW cor. NE SE SW, Section 2-7s-6, is a location. Kingston Oil Co.'s No. 1 Adams, NE cor. SW SW SE, Section 31-7s-6, is a rig. Curry and others' No. 1 Croft, NE cor. NW SW SW, Section 9-7s-6, was spudding. Everett and others' No. 1 Ayers, SE cor. NE, Section 14-7s-6, was abandoned at 1,170 feet.

Oklahoma County

Phillips Petroleum Co.'s No. 1 Calkins, SE cor. NE NE, Section 3-11-3w, is a rig. Major Petroleum Co.'s No. 1 Goodwin, SE cor. NW, Section 22-11-3w, is a rig. Phillips Petroleum Co.'s No. 1 Owenby, NW cor. SE, Section 22-11-3w, is a cellar. Russell Petroleum Co.'s No. 1 Russell, SE cor. NE NW, Section 22-11-3w, is a rig. Same company's No. 2 Russell, NE cor. SE NW, Section 22-11-3w, is a rig. Skelly Oil Co.'s No. 1 Moon, NW cor. SW NE, Section 22-11-3w, is drilling at 2,300 feet. Indian Territory Illuminating Oil Co.'s No. 9 Oklahoma State, SW cor. NW NW, Section 36-11-3w, is a rig and No. 10 Oklahoma State, NW cor. SW NW, Section 36-11-3w, is a rig. Slick and others' No. 9 Classen-Edwards, NW cor. SW SW, Section 3-11-3w, swabbed 252 bbls. of oil in eight hours from sand at 6,450-97 feet. No. 12 Classen-Edwards, SE cor. SW SW, Section 3-11-3w, flowed 3,486 bbls. of oil in four hours from sand at 6,352-6,495 feet. Indian Territory Illuminating Oil Co.'s No. 4 Ivanhoe, SE cor. SW NE, Section 15-11-3w, made 885 bbls. of oil from sand at 6,370-6,400 feet, in nine hours. Same company's No. 2 Little, C NE NE, Section 27-11-3w, made 7,157 bbls. of oil from sand at 6,490-6,590 feet, with 100,000,000 feet of gas a day.

Okfuskee County

Wells and others' No. 2 Micco, SE cor. NE, Section 14-10-11, is a machine. Same operators' No. 2 Stilwell, CSL NE NE, Section 14-10-11, was abandoned at 2,180 feet.

Okmulgee County

J. E. Wallace and others' No. 5 Colbert, CSL NW NW, Section 14-14-14, is spudding.

Osage County

Peters Petroleum Co.'s No. 1, in the NE SE, Section 27-27-11, was drilled deeper to 1,821 feet and abandoned, old total depth 1,609 feet. Corbin and others' No. 7, in the C SE SW, Section 16-23-11, was an old well drilled deeper from 1,684 feet to 1,778-92 feet and completed for 15 bbls. a day. Henerman and others' No. 3, in the CNL NE SW, Section 21-23-11, (O.W.D.D.), found sand at 1,860-80 feet making 5 bbls.; total depth 1,900 feet.

Pawnee County

J. Samples' No. 1 Martin, SE cor. SW SW, Section 7-20-9, is a location.

Pottawatomie County

Magnolia Petroleum Co.'s No. 1 School Land, NE cor. NW, Section 36-6-4, is spudding.

Pontotoc County

Culloway and others' No. 1 Cannady, NE cor. NW, Section 35-5-6, is an abandoned location. Delaney and others' No. 1 A. King, NW cor. SE, Section 32-5-6, was abandoned at 875 feet.

Grady County

English Drilling Co.'s No. 1 Heenan-Coe, NE cor. SE NE, Section 32-3-7w, is a rig.

Stephens County

Gillette Brothers' No. 1 A. Cooley, NW cor. SE NW, Section 17-2s-8w, is a location. Stogner and others' No. 1 Peck, SW cor. NW, Section 1-2s-8w, is a rig. Medlin and others' No. 1 Moore, NE cor. NW, Section 11-2s-8w, is a rig.

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	S.D. 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	S.D. 5,502 ft.

BECKHAM COUNTY

Pattel Royalty's No. 1 Goose Tree, SW SE SW SE Sec. 32-10-23w	Rig.
Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	T.D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cmt. to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-22-22w	S.D. 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	S.D. 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	S.D. 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	S.D. 1,115 ft.

CHEROKEE COUNTY

La Piere et al's No. 1 Woods, C SE SE Sec. 27-17-21	S.D. 1,504 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McGraw, NE NW Sec. 2-1s-8	S.D. 1,450 ft.

COMANCHE COUNTY

Bradley et al's No. 1 Pruitt, NE SW SE, Sec. 8-1-9w	Drlg. 900 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	S.D. 1,450 ft.

CREEK COUNTY

E. L. Jillson et al's No. 1 Starr, SE NW, Sec. 18-15-8	Rig.

CUSTER COUNTY

Miley Pet. Co.'s No. 1 Caldwell, NE Sec. 12-14-14w	Location.

GRADY COUNTY

Carter Oil Co.'s No. 1 Carson, C SE SE SE, Sec. 12-3-8w	Drlg. 212 ft.
Schoonmaker et al's No. 1 Station, NW cor. 35-4-6w	S.D. 40 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	S.D. 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	Abnd. 4,830 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor. Sec. 1-7-22w	5,000,000 ft. gas 1,455-65 ft.; T.D. 1,760 ft.
French's No. 1 Murphy, SW NW Sec. 22-7-21w	S.D. 1,645 ft.

HASKELL COUNTY

Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	S.D. 2,000 ft.
Ault et al's No. 1 Hall, SE NW Sec. 25-19-9	S.D. 200 ft.

KAY COUNTY

Bluebaugh et al's No. 1 Indian, C NW NE Sec. 30-25-1	Fishing 2,028 ft.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1	Location.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2	S.D. 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w	Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w	Drlg. 1,104 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE Sec. 16-6-19	S.D. 1,542 ft.

LINCOLN COUNTY

Sovereign Oil's No. 1 Selakek, NE SE Sec. 2-12-5	Drlg. 4,398 ft.
Hilton Phillips' No. 1 Phillips, SW NW Sec. 2-14-3	Show oil and water; 6-in. csg.; T.D. 5,065 ft.
Mote et al's No. 1 School Land, NW cor. Sec. 36-17-5	Drlg. 3,355 ft.

NOBLE COUNTY

Wentz Oil's No. 1 Wolff, C SE NW Sec. 17-20-2w	Rig.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor. Sec. 21-11-3w	S.D. 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w	S.D. 5,515 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5	S.D. 1,950 ft.

PITTSBURG COUNTY

Ruby Ann Oil Co.'s No. 1 George, CEL NW SE Sec. 3-4-16	Show gas 1,116-37 ft.
Tape Oil Co.'s No. 1 Fulton, SE Sec. 34-7-14	S.D. 1,700 ft.
J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17	Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14	Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14	Rig.

PONTOTOC COUNTY

Vanderslice's No. 1 Meredith, NE SW, Sec. 17-2-4	Drlg. 200 ft.
Vanderslice's No. 1 Kahn, NE NW, Sec. 20-2-4	T.D. 440 ft.; abnd.

POTTAWATOMIE COUNTY

Clara Oil & Gas Co.'s No. 1 Unknown, SW NW NE, Sec. 1-9-4	Drlg. 4,518 ft.
Barnsdall et al's No. 1 Gray, NE SW Sec. 25-6-4	3,484-90 ft.; 135 bbls. hr.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w	S.D. 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w	S.D. 3,420 ft.

WASHITA COUNTY

Miley Pet. Co.'s No. 1 Wolfe, NE SW Sec. 33-9-17w	Rig.
Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w	Show oil 2,459-67 ft.; S.D. 2,757 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18	Drlg. 1,525 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1E	T.D. 4,720 ft.; to cement.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Morris et al's No. 1 Ray, NE NW NE Sec. 8-2S-12	S.D. 256 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10	S.D. 1,967 ft.

CARTER COUNTY

Lundy's No. 1 Spraggins, C NE NW SW Sec. 8-1s-2w	S.D. 3,340 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE Sec. 18-4s-8w	Location.

MARSHALL COUNTY

Trailkill et al's No. 1 Spence, NE NW Sec. 10-7s-6	Rig.
Liggett et al's No. 1 McDuffee, SE NE Sec. 2-7s-6	Show 10 bbls. oil 805-09 ft.
Starrett et al's No. 1 Henry, NE NW Sec. 22-7s-6	Abnd. 851 ft.
Everett et al's No. 1 Agres, SE NE Sec. 14-7s-6	S.D. 1,170 ft.

McCURTAIN COUNTY

Prassell et al's No. 1 Wagoner, SE NE Sec. 5-8s-27	Show oil 560 ft.; drlg. 608 ft.
Stampfs et al's No. 1 Harris, SW NW SW Sec. 14-9s-25	S.D. 2,731 ft.
Stewart's No. 1 Patterson, C SE SE Sec. 7-6s-24	S.D. 1,411 ft.

PUSHMATAHA COUNTY

Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-3s-18	Drlg. 1,800 ft.

STEPHENS COUNTY

George's No. 1 Ryan, NW SW NE Sec. 31-3-15	S.D. 510 ft.

ROCKY MOUNTAIN RUNS

Average daily pipe line runs from fields in the Rocky Mountain territory for the week ended May 14 follow:

	Bbls.
WYOMING	
Salt Creek	21,010
Badger Basin	50
Big Muddy	1,670
Byron-Garland	230
Dallas-Derby	580
Dutton Creek	70
Elk Basin	650
Ferris	20
Frannie	2,110
Grass Creek	2,020
Hamilton Dome	740
Hudson	440
LaBarge	790
Lance Creek	100
Lost Soldier	2,510
Midway	70
Oregon Basin	....
Osage	950
Pilot Butte	40
Rock River	1,750
Poison Spider	90
Teapot	20
Total Wyoming	35,910
MONTANA	
Buckley-Border	640
Cat Creek	860
Dry Creek	1,120
Kevin-Sunburst	3,350
Lake Basin	60
Pondera	1,020
Total Montana	7,050
COLORADO	
Florence	250
Fort Collins	850
Iles	630
Moffat	740
Orchard	340
Rangely	90
Tow Creek	300
Total Colorado	3,200
NEW MEXICO	
Rattlesnake	....
Hogback	410
Table Mesa	70
Artesia	502
Cap Rock	925
Hobbs	30,515
Jal	845
Lea City	2,005
Eunice	463
Texas Pacific	96
Total New Mexico	35,891
Total Rocky Mountain area	82,051
Total previous week	84,505
Difference	2,454

BEAVER REFINING COMPANY
COMPAGNIE FRANCAISE DE RAFFINAGE
CREW LEVICK COMPANY
GULF REFINING COMPANY
KENDALL REFINING COMPANY
LOS NIETOS PRODUCING & REFINING CO., LTD.
PURE OIL COMPANY
RICHFIELD OIL COMPANY OF CALIFORNIA
SHELL CHEMICAL COMPANY
SHELL OIL COMPANY
SINCLAIR REFINING COMPANY
STANDARD OIL CO. OF N. Y.
THE TEXAS COMPANY [CALIFORNIA]
VACUUM OIL COMPANY, INC.
WHITE STAR REFINING COMPANY

The above list is representative of companies who have ordered or who are using Foster Wheeler plants for natural gasoline absorption, for refinery vapor recovery or for stabilizers to fractionate between the lighter hydrocarbons.

A discussion of the efficient solution of the whole problem of handling refinery vapors and stabilizing liquid products is contained in a new bulletin entitled "Trend in the Design of Vapor Recovery and Stabilizer Plants." Copies of this bulletin may be had on request.

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.

FOSTER WHEELER

Good Wells in New Fields in Kansas

Stratman Pool and Johnson Pool in McPherson County in the Limelight. Allowable in Ritz-Canton Field Increased

By W. A. Spinney
Staff Correspondent, Kansas Fields

Several important completions were recorded in Kansas in the past week, and a new location was added to the numerous tests in the Ellsworth-Barton Arch area. Midwest Refining Co.'s No. 1 in the C SW SE, Section 9-20-11w, is a new location in Barton County on a block of 12,500 acres, located about 3½ miles west of the Isern Pool, in the same county. The acreage has been core drilled and seismographed.

Production in the State was increased about 2,000 bbls. per day in the past week, the daily average crude oil output for the week having been 96,100 bbls.

Another large producer has been found in the Stratman Pool, in Ellsworth County. Derby Oil Co. and Smith and Ash's No. 1 Stratman, NW cor. NE NE, Section 12-17-10w, was drilled deeper and averaged 75 bbls. of oil per hour. The well is estimated at 2,000 bbls. a day from the Silicious lime at 3,261-82 feet. A potential test is expected to be taken in a few days, as soon as the pumping equipment can be installed. It is a better producer than the wells offsetting it. The well first made 40 bbls. of oil an hour from the Silicious lime at 3,261-71 feet. It was drilled on acreage farmed out by The Texas Company.

Mid-Kansas Oil & Gas Co.'s No. 1 Bridgen, NE cor. NW SW, Section 2-20-3w, in the new Johnson Pool, McPherson County, made 1,495 bbls. of oil in a 12-hour test, and it has been given a potential of 2,990 bbls. per day from the chat at 2,978-3,030 feet. The well made 90 bbls. of oil the first 30 minutes. It is the sixth well completed in the pool discovered by the Shell Petroleum Corp.'s No. 1 Johnson, in Section 35-19-3w.

New Well in Johnson Pool

The fifth producing well to be completed in the Johnson Pool, 1½ miles south of the townsite of McPherson, in the same county, is being completed. It is the Shell Petroleum Corp.'s No. 1 Lawrence, SE cor. NE, Section 35-19-3w. The well was making 19,000,000 feet of gas a day from the chat at 2,974-96 feet where it was being drilled deeper. It is a direct offset to the same company's No. 1 Helstrom, which made 1,200 bbls. of oil a day. The other producing wells in the area have been drilled from 60 to 70 feet into the chat and the company plans to drill this well to approximately the same level.

Another test in Ellsworth County was preparing to resume operations after being shut down about two months. Reynolds & Unruh's No. 1 in the E half SE, Section 10-16-10w, is cleaning out preparatory to drilling deeper. The test has been shut down for about two months while waiting for pipe to be pulled from another well.

In the north extension of the Ritz-Canton-Decker Field in McPherson County, Stanolind Oil & Gas Co. and W. C. McBride, Inc.'s No. 3 Lovett, SE cor. SW, Section 13-19-2w, is a new location. It is the west offset to the Cary Oil Co.'s No. 3 Holt, in the same section.

Resumption in Ford County

Swain Oil Co.'s No. 1 Taylor, in Section 21-25-24w, Ford County wildcat, which has been shut down several months at a total depth of 5,105 feet is expected to resume operations in a few days. Several Dodge City men have become interested in the deepening of this test and it will be baited out and tools sent in to drill deeper. It is the only operation in the county at this time.

In the Church acre district near Burrton, in the northwestern corner of Harvey County, opened by F. Hollow and others' test on a 1-acre lot in the SW cor. NW, Section 20-22-3w, three wells are nearing the pay horizon. W. C. McBride, Inc.'s No. 1 Friesen, NW cor. SW, Section 20-22-3w, was drilling around 2,900 feet. It is the south offset to the discovery well. Connell & Garden's No. 1 Martins, NE cor. SE, Section 19-20-3w, southwest of the discovery well, has not yet spudded. Part of the material has been moved to the location, but the work is delayed. Stanolind Oil & Gas Co.'s No. 1 in the SW cor. NW, Section 20-22-3w, was making good time drilling around 2,700 feet. Mid-Kansas Oil & Gas Co.'s No. 1 Doerksen, SE cor. NE, Section 19-22-3w, was drilling around 2,850 feet, the west offset to the discovery well.

Two miles north of McPherson in the same county, Snyder and others' No. 1 Carlson, SE cor., Section 4-19-3w, is a new wildcat location. Material is being moved in and the operations are expected to get under way in a few days. It is located about 2½ miles north of the recently completed wildcat of the Shell Petroleum Corp. in Section 35-19-3w, which is believed to have opened a new producing area.

Kansas Leading Field

The Ritz-Canton-Decker Pool, in McPherson County is still the largest producing field in the State. According to a report of the umpire and agent of the Public Service Commission, the 139 wells in the field have a potential of 110,819 bbls. on May 1. The 60 chat wells in the field had a potential of 23,455 bbls. and the 79 Viola lime wells had a potential of 87,364 bbls. The total pipe line shipments from the field during the month of April were 359,489 bbls.

The allowable of the field during the month was reduced from 8 per cent to 6½ per cent. From April 1 to 19 the operators were permitted to produce 8 per cent of the potential and from April 20 to 30, 6½ per cent. Due to an increase in the pipe line outlet on May 1, the allowable was increased to 8 per cent of the potential.

Activity on the townsite of Canton, on the east edge of the Ritz-Canton Pool, shows an increase. Operations are starting at two of the tests on the townsite. Keys Brothers' No. 1, SW cor. SE, Section 21-19-1w, which was spudded in, is expected to resume drilling operations in the near future. Another test on the townsite is Minear's No. 1 on Block 2 in Section 21-19-1w, which has rigged up cable tools and is now waiting for a gas fuel line to reach the location before spudding.

The Derby Oil Co.'s new pipe line carrier connecting a 24-mile link between the company's Bell station near Burrton, in Harvey County, to the Wright Station, near Valley Center in Sedgwick County, was completed during the week and placed in operation. The pipe line consists of 4- and 6-inch pipe and serves the Burrton district in Harvey County, the Voshell Pool, in McPherson County, and the Ritz-Canton Field in McPherson County.

The Derby Oil Co. recently completed another pipe line project in the southwestern part of Ellsworth County. It was a 10-mile pipe line from the Stratman Pool to the townsite of Lorraine, where the oil is loaded into tank cars and shipped to the company's refinery at Wichita.

In the Cunningham district of Kingman County, Skelly Oil Co.'s No. 1 Liesman, C SE SW Section 20-27-10w, is preparing to drill deeper after finding oil in the Kansas City lime at 3,417-90 feet, where it swabbed 419 bbls. the first 24 hours and 325 bbls. the second 24 hours. The 8-inch casing is to be landed through the sand and the oil from the Kansas City lime produced through a bradenhead. The discovery well in the area, the same company's No. 1 Miles, in the C NE NE, Section 30-27-10w, has been averaging 215 bbls. a day. The same company is also drilling another test at No. 1 N. Miles, SE cor. Section 19-27-10w. No. 1 Liesman was started with the intention of drilling and testing the deep formations in the area as the company owns a large block of acreage in the vicinity.

Olson Drilling Co. and others' No. 1 Duckworth, C SE NE Section 23-23-4w, Reno County, is a new location, offsetting the recently completed well of the same operator's No. 1 Johnson, which made 400 bbls. of oil a day. This new operation is the ninth test to be started in this area. It is also about a half mile north of the discovery well in the area, the No. 1 Blake, drilled by the Shell Petroleum Corp.

Butler County

Ramsey and others' No. 1 Michael, SW cor. NW NW, Section 18-27-3, is a location.

Cowley County

Deal Oil & Gas Co.'s No. 1 College Gymnasium, NE cor. SW SE, Section 22-32-4, is a location. McNabb and others' No. 3 Hutton, SW cor. SE NE, Section 22-32-4, was rigging up. Murphy and others' No. 1 Orchard, SE cor. SW SE, Section 22-32-4, was a rig on the ground. Slocum and Edmeyer's No. 1 Baker, NE cor. NW NE, Section 27-32-4, was a location. Whitaker and others' No. 1 Hadley, SW cor. SE NW, Section 19-34-3, found water at 1,480-90 feet and was abandoned at 1,495 feet. Murphy and others' No. 1 Baker, NW cor. NE SE, Section 22-32-4, made 170 bbls. of oil from sand at 2,388-2,410 feet after a 100-quart shot.

Ellsworth County

Gear & Hannah's No. 1 Kroboth, SE cor. NW, Section 12-15-10w, is a rig. Aylward and others' No. 4 Stratman, NW cor. NE SE, Section 1-17-10w, swabbed 90 bbls. of oil per hour, pumping 2,392 bbls. in 24 hours from the Silicious lime at 3,254-61 feet.

Greenwood County

York State Oil Co.'s No. 1 Edwards, NE cor., Section 35-24-10, is a location. Same company's No. 1 Lefebure, NE cor. NW NE, Section 14-23-11, is a location, and No. 1 Dreasher, NE cor. SW, Section 15-23-11, is a location. Gore and Phillips Petroleum Co.'s No. 5 Beal, SE cor. SW NE, Section 28-23-11, is a location. Same operators' No. 2 A. Brothers, NE cor. NW NW, Section 35-23-11, is a location. Same operators' No. 1 A. Brothers, NW cor. NE NW, Section 35-23-11, made 15 bbls. of oil from sand at 1,835-65 feet. Harwood Oil Co.'s No. 3 Beal, SE cor. SW SE, Section 28-23-11, was abandoned after an 80-quart shot at 1,962-80 feet. T. Palmer's No. 1 Currey, NE cor. NW SW, Section 34-23-11, was plugged at 1,883 feet. Aikman & Baker's No. 1 Panenmire, SW cor. NW SW, Section 14-22-13, was plugged at 1,902 feet.

McPherson County

Sidwell and others' No. 1 Nichols, NE cor. NW NW, Section 28-17-1w, is a location. Brennan's No. 1 Salthouse, NE cor. NW SE, Section 3-20-3w, is a location. The Texas Company's No. 1 Tipton, NW cor. NE, Section 2-20-3w, is a rig. Mohawk-Deep Rock Oil & Refining Co.'s No. 1 McGill (O.W.D.D.), SW cor. NE, Section 7-20-1w, was rigging up. Brennan and others' No. 1 Magneson, SW cor. NW NW, Section 25-19-3w, was a rig on the ground. Carey and The Texas Company's No. 3 Holt, SW cor. SE, Section 13-19-2w, is a rig. McBride, Inc.'s No. 3 Lovett, SE cor. SW, Section 13-19-2w, is a rig on the ground. Lario and Shell Petroleum Corp.'s No. 3 Boal, NE cor. NW, Section 24-19-2w, is a location. Same operators' No. 2 Law, NW cor. NE, Section 24-19-2w, is a location. Darby Petroleum Corp.'s No. 2 Coon, SW cor. SE SW, Section 20-19-1w, is a rig. Detrick and others' No. 1 Dalke, NW cor. SE, Section 16-19-1w, is a rig on the ground. Shawver and Shell Petroleum Corp.'s No. 1 Koehn, NE cor. SE, Section 2-20-2w, had water at 3,450-52 feet and was abandoned. Carey and The Texas Company's No. 2 Holt, SE cor., Section

(Continued on Page 117)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	Set liner 3,530-46 ft.; show oil; T.D. 3,560 ft.; S.D.
DICKINSON COUNTY	
Severe et al's No. 1 Lavengood, NE SW, Sec. 13-13-2	S.D. 4,752 ft.
DOUGLASS COUNTY	
Hewitt's No. 1 Dodder, CWL SW SW, Sec. 7-15-18	Water 1,330-35 ft.; S.D.
EDWARDS COUNTY	
Mid-Kansas O. & G. Co.'s No. 1 Converse, SW NE NE, Sec. 30-24-18w	Drlg. 2,845 ft.
ELLSWORTH COUNTY	
Johnson Vickers' No. 1 Claussen, C SE NW Sec. 31-15-10w	Spudding.
R. Gear et al's No. 1 Sanberth, C SW SE, Sec. 29-16-9w	S.D. 50 ft.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Smith, SE Sec. 24-8-25w	R.O.G.
FINNEY COUNTY	
National Ref. Co.'s No. 1 Wells, C SW, Sec. 13-23-30w	Drlg. 4,755-56 ft.
HARVEY COUNTY	
D. R. Louck's No. 1 Regier, SW SE NW, Sec. 9-22-3w	Fishing 1,830 ft.
J. Liggett et al's No. 1 Vessel, NE SW, Sec. 3-23-3w	Location.
Liggett et al's No. 1 Davis, SW SE NE, Sec. 7-24-1	S.D. 2,500 ft.
KINGMAN COUNTY	
Panhandle Drlg. Co.'s No. 1 Wetheral, C SE NW SW, Sec. 20-28-10w	12-in. csg. 1,610 ft.; S.D.
McPHERSON COUNTY	
Simmons-Canary's No. 1 Krehbiel, SE NW Sec. 33-18-1w	Rig.
Detrich et al's No. 1 Sinclair, SE SW, Sec. 25-19-1w	Drlg. 2,335 ft.
MORTON COUNTY	
Hydraulic Oil Co.'s No. 1 State Land, NW SE, Sec. 32, 34-43w	T.D. 3,640 ft.; temp. abd.
MORRIS COUNTY	
Urschel et al's No. 1 Bersuch, NW SE NW, Sec. 10-17-7	S.D. 915 ft.
Kostle-Moseley & Hatfield's No. 1 Furney, NE SE, Sec. 16-16-8	Spud; S.D.
NORTON COUNTY	
Richards et al's No. 1 Colby, Sec. 17-4-21w	Rig.
OSAGE COUNTY	
Briggs & Smith's No. 1 Wood, SE NW, Sec. 21-14-15	S.O. 2,190-2,200 ft.; S.D.
PHILLIPS COUNTY	
Hall et al's No. 1 Donaldson, C NE NE, Sec. 25-5-18w	Drlg. 1,355 ft.
PRATT COUNTY	
Ninnescah O. & G. Co.'s No. 1 Hardesty, SW SE SE, Sec. 28-27-11w	Rig.

(Continued on Page 101)

Seven Wildcat Failures Are Reported

More Than Ordinary Disappointment in North Louisiana and East Texas Border Counties. Arkansas Deep Test Abandoned

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., May 16.—Seven completions were reported, all wildcat failures. The Zwolle Field, the most active producing area, failed to turn in a producer, but a good number of wells have set casing over the chalk rock pay and several others are waiting on standard rig to pump. The western and eastern extremities of this field are both getting a good play, particularly the western extension southwest of the town of Zwolle, where two good 2,000-bbl. gushers have been bought in within the past three weeks.

The abandoned wildcats caused more than the ordinary disappointment as several had indications of better results. In the northern part of De Soto Parish, near the town of Grand Cane, Warren & Craig abandoned their No. 1 Phillips, Section 33-13-14, at 3,200 feet after coring constantly from the 3,000-foot level to the total depth. The test was in the immediate vicinity of several other wildcats drilled during the past two years and all of which had good showings of oil or gas. Pelham & Bundy's No. 1 Rhodes, Section 32-13-14, less than 1 mile west, was completed in October, 1930, flowing by heads 12 bbls. of oil and 15 bbls. of salt water from a total depth of 3,009 feet. The pay sand in this well was cored at 2,997 feet. Another test in this territory 1½ miles northeast of the present well, had results that led operators to believe that a new field existed there. The Danciger Oil & Refining Co.'s No. 1 Harris, Section 11-13-14, was completed in 1930 by Odell & Lawton with an estimated flow of 20,000,000 feet of gas and a heavy spray of salt water from 3,150 feet.

That faith is still held of uncovering a new producing field in this part of De Soto Parish is evidenced by a new wildcat rigging up on the Sutherlin tract in Section 19-12-14, about 4 miles southwest of the Warren & Craig test. The Standard Oil Co. of Louisiana and the Pelican Natural Gas Co. have assembled 6,000 acres surrounding the new well. The Warren & Craig well topped the Nacatoch at 1,361 feet with the base at 1,508 feet and found the top of the chalk at 1,554 feet. The other dry hole for North Louisiana was the Ruston Drilling Co.'s No. 1 Cutrer, Section 13-7-11, a semiwildcat in the extreme southeastern part of the Zwolle area. The well was dry and abandoned at 3,632 feet.

East Texas Border

As predicted last week, Harrison and Marion Counties on the eastern border of Texas reported dry holes for all of the completions turned in. In the former county, Medders & Gochee's No. 1 T. W. Davidson, R. W. Starr Survey, was dry and abandoned at 3,757 feet. The test encountered the top of the Georgetown lime at 3,711 feet, but reported a show of oil in broken sand from 3,703-9 feet. The plans of the operators to set a string of casing and test this sand did not materialize. In the same county, J. G. Peterbaugh's No. 1 Collums, W. G. Pentecost Survey, was dry and abandoned at 3,616 feet. Marion County furnished another setback for production between the East Texas Field and the Louisiana line by reporting one dry hole. Benedum & Trees' No. 1 Bertha Tyler, William Holloway Survey, tested salt water from 2,973 to 3,039 feet and topped the Georgetown lime at 3,600 feet. The test was abandoned in this formation at 3,751 feet.

Arkansas Operations

In the gas district of Crawford County, Arkansas, the Ozark Natural Gas Co. is drilling in shale at 980 feet on their No. 1 Jones, Section 32-9-31. In Ashley County, D. S. Brooks, Inc. is drilling in black shale at 2,955 feet on its No. 1 Crossett Lumber Co. in Section 31-15s-6w. Two wildcats are active in Miller County, near Texarkana. Fitzwater and others' No. 1 Beck, Section 33-15-26, is nearing the pay horizon of 3,000 feet, at which depth some of the Lentz wells in that vicinity had good shows of low gravity oil. In the southern part of the same county, W. E. Noel and others' No. 1 Dickson heirs, Section 11-20-27, has drill stem stuck at 2,600 feet.

Deepest Test in Arkansas

The deepest test yet drilled in the State of Arkansas was finally junked and abandoned at 7,255 feet. Lion Oil Refining Co.'s No. 9-A G. P. Hayes, Section 4-16-15, in the Smackover Field of Union County, was never able to recover all of the drill stem stuck at the total depth. The test was started in April of last year and after setting 12½-inch casing at 272 feet encountered volcanic ash at 2,932 feet and the top of the red beds at 3,341 feet. Nine-inch casing was set at 3,998 feet for a test of 5 feet of sand showing oil from that depth to 4,004 feet. A core from 4,017-25 feet showed oil and salt water sand, and sand shale with no show was cored from 4,212-14 feet. The test was cored constantly from this depth to 4,800 feet without encountering a pay sand. From 4,858-60 feet, salt water with streaks of heavy dead oil was cored, and a test was made in hard gray lime at 5,236 feet with barren results. A core of brown sandy lime from 5,633-39 feet contained dead oil and salt water. Rock salt was encountered at 5,974 feet and this formation continued to the total depth. A total of 1,281 feet of solid rock salt had been penetrated when the drill stem stuck in this formation at the total depth of 7,255 feet.

North Louisiana Wildcats

Wildcatting in North Louisiana continues active, several tests already started making good progress and from one to two new blocks being assembled each week. In De Sota Parish, C. Holt of Omaha, Neb., is arranging to take over a block of acreage from Bruce Harp and Will Hollingsworth centering around Sections 35 and 26, Township 12, Range 11. A contract to drill a 3,000-foot test to be started within 90 days after obtaining title to the acreage is incorporated in the leases. In the same parish, Coker and others have derrick up to drill No. 1 Boone in Sectioin 12-10-11. H. W. Perritt is making good progress on two wildcats being drilled in Natchitoches Parish, northeast of the Zwolle Field. No. 2 Brown Lumber Co., Section 29-8-9, is drilling at 450 feet, and No. 1 Cook, Section 3-8-9, is drilling at 800 feet. The latter test is 1½ miles northeast of the town of Robeline. These two wildcats are located on a 12,000-acre block, part of which is in Sabine Parish.

Near the town of Pleasant Hill in Sabine Parish, J. M. Bridges is drilling at 2,405 feet on his No. 1 Armstrong, Section 28-10-11. This test topped the chalk at 1,559 feet with the base at 2,074 feet, and encountered the top of the Blossom at 2,224 feet. Four miles south of this wildcat, Frank Foster, Inc. is coring below 3,600 feet in its No. 1 Stevens, Section 20-9-11. This test was completed as a good gasser about one month ago from a total depth of 3,358 feet, and the operators are deepening in an attempt to pick up an oil bearing sand in some of the formations of the lower Cretaceous.

Zwolle Area

The deepest test yet drilled in the Zwolle area, R. L. Gay, trustee's No. 1-A Long Bell Lumber Co., Section 10-8-13, is coring at 5,240 feet. Six and five-eighths-inch casing was set at 4,725 feet for a test of a good looking core cut from Oolitic lime in the Glen Rose of the upper Trinity but salt water appeared after the plug was drilled and no test was made. The crew has been coring from that depth to the present total depth without encountering anything that would indicate a paying sand. In Grant Parish, the Security Petroleum Corp. has set 6-inch casing at 1,540 feet in its No. 1 Swope estate, Section 16-9-1e. The total depth of the hole is 1,582 feet and a test will be made of broken sand and shale found at this depth. Miller and others (was Dr. W. N. Hankins) are skidding over the derrick from their No. 1 Newell, Section 12-19-11, in Bossier Parish. They will make a shallow test at 460 feet where a reported show of oil was encountered while drilling the first test, which stands temporarily abandoned in the top of the Blossom at 1,895 feet. In the northern part of Webster Parish, J. K. Wadley is drilling plug from 6⅝-inch casing set at 2,795 feet in his No. 1 Matthews, Section 11-23-9.

Daily Average Runs

There was a decrease of 380 bbls. in the daily average runs from the fields of Arkansas and Louisiana during the past week. The daily average runs from the several pools were:

NORTH LOUISIANA	
Caddo, light	5,505
Caddo, heavy	2,080
Cotton Valley	570
DeSoto-Red River	2,000
Elm Grove	220
Haynesville	4,420
Holly	295
Homer	2,585
Pleasant Hill	300
Sarepta-Carterville	790
Urania	3,630
Zwolle	6,825
Total North Louisiana	29,520
Total previous week	29,695
Decrease	175
ARKANSAS	
Champagnolle	1,935
El Dorado	3,020
Lisbon	505
Nevada	1,125
Smackover, light	2,950
Smackover, heavy	23,610
Stephens	640
Urbana	600
Total Arkansas	34,385
Total previous week	34,590
Decrease	205
Total both states	63,905
Total previous week	64,285
Decrease	380

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Company, well, farm name, section and block— Remarks:
Stauffer & Eshleman's No. 1 Caruth, Sec. 40-1n-7e.....Derrick.

BOSSIER PARISH

Dr. W. N. Hankins' No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11 .....Skidding derrick over for shallow test.

CADDO PARISH

Pyramid O. & G. Co.'s No. 2 Beard, Sec. 9-8-16, 660 ft. S, 1,980 ft. W, NE cor. Sec. .....Set 6⅝-in. 2,750 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4 .....Drlg. shale 2,900 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-2e .....S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marah McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6.....T.A. 3,097 ft.

DE SOTO PARISH

Coker et al's No. 1 Boone, 200 ft. N and W, SE cor. SW NW, Sec. 12-10-11 .....Derrick.
Donley & Chastain's No. 1 H. Smith, 335 ft. W, 600 ft. N, SE cor., Sec. 31-14-15 .....Waiting on D.S. 2,295 ft.
E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor, NE NW, Sec. 30-13-15.....S.D. 3,450 ft.
A. R. Smith's No. 1 Horn, Sec. 16-12-16, NE cor. Sec. ..Rigged up and S.D.
DeSoto Dev. Co.'s No. 1 Nickey, Sec. 7-13-12.....Derrick.
Rudesealе et al's No. 3 Naboes, Sec. 6-12-11 .....Rigging up.
Standard Oil Co. and Pelican Nat. Gas Co.'s No. 1 Sutherlin, 320 ft. N, 260 ft. W, SE cor. SW, Sec. 19-12-14 .....Derrick.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13....Drlg. chalk 1,715 ft.
Warren & Craig's No. 1 Phillips, 450 ft. N, 250 ft. E, SW cor. NE, Sec. 33-13-14.....Dry and abd. 3,200 ft.

GRANT PARISH

Security Pet. Corp.'s No. 1 Swope est., Sec. 16-9-1e, 1,698 ft. N, 220 ft. E, SW cor. Sec. .....Set 6-in. 1,540 ft; T.D. 1,582 ft.
O. Robichaux's No. 1 T. M. Bradford, 1,870 ft. E, 314 ft. S, NW cor., Sec. 16-9n-1e .....Location.

MOREHOUSE PARISH

United Gas Public Service Co.'s No. 2 Sandidge, Sec. 11-20n-4e, 656 ft. S, 1,322 ft. W, NE cor. NW.....Comp. 7,500,000 ft. gas 2,170 ft.

NATCHITOCHES PARISH

W. M. Coates' No. 1 Ross Olive, Sec. 10-9-10, 660 ft. S and E from cen. of Sec. .....Rigging up.
Dr. H. S. Gerson's No. 1 Smith, Sec. 11-10-8, 2,000 ft. N, NE cor. of irregular Sec. 10, in Sec. 11.....Drlg. 1,120 ft.
R. A. Keaton's No. 1 Stephens, Sec. 25-10-6, 320 ft. N and W, SE cor. NW NW.....S.D. 1,500 ft.
H. W. Perritt's No. 1 Cook, 165 ft. E, 165 ft. N, SW cor. NE SW, Sec. 3-8-9.....Drlg. 800 ft.
H. W. Perritt's No. 2 Brown Lbr. Co., 300 ft. N and W, from center Sec. 29-8-9 .....Drlg. 450 ft.

OUACHITA PARISH

Wilson & Mitchell's No. 1 Williams, Sec. 5-16-1e, 330 ft. E, 240 ft. S, NW cor. SW SE.....Drlg. limey shale 3,075 ft.

RED RIVER PARISH

C. F. Davis' No. 1 Pierson, 500 ft. S, 317 ft. E, NW cor. SW NW, Sec. 12-14-11.....Location.
La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11.....Spudded and S.D. 50 ft.

RICHLAND PARISH

National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e.....S.D. 2,515 ft.

(Continued on Page 103)

New Interest in Montgomery County

Second Strake Well Coring Near Productive Horizon. Unusually Good Well Completed at Barbers Hill. Rabbs Ridge Extended

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., May 16.—Interest on the Gulf Coast again is being centered in the Conroe district of Montgomery County, where Strake Oil Corp.'s No. 2 South Texas Development Co. is coring near the productive horizon found by No. 1, the discovery well, and which well is expected within the next few days to give considerable additional information concerning the extent and nature of the area. Late in the week the test was coring around 4,800 feet, which was less than 200 feet above the bottom of the hole of the discovery well completed last December at a total depth of 4,991 feet.

The second Strake well is approximately 2,200 feet to the south of the first well and in a position to indicate the possible trend of the field in that direction. It is the third well, including the discovery well, to reach the horizon, Heep Oil Corp.'s No. 1 Cartwright, located in the John Davis Survey, approximately a mile and a half to the east of the discovery well, having been completed over a month ago as a wet gas well. Bottom of hole there was 5,078 feet.

The chief concern in the Conroe district now hinges on the possibility of getting a "black" oil well as the first two wells, Strake's No. 1 South Texas and Heep Oil Corp.'s No. 1 Cartwright, were rated as wet gas wells with both making a very light gravity distillate but mostly gas. The second Strake well has encountered decidedly thicker sand bodies than in the other wells, which had mostly shales, and is reported running somewhat higher. A succession of sands and showings have been had and numerous drill stem tests have been run within the past 700 or 800 feet.

West of Conroe

West of Conroe and about 6 miles or more from the Strake well, Wilson Oil Co.'s (Kelley-Baker) No. 2 Leiberman, D. James Survey, is coring around 5,100 feet and is of interest in view of possible bearing on determining the Conroe geological conditions about which a great deal of uncertainty still prevails. That well is reported to have had showings of oil and gas and efforts have been made to get a drill stem test.

Two other tests, which also will have an important bearing on the area, are drilling, but so far are not down far enough. Heep Oil Corp.'s No. 1 Freeman, a short distance east from the Cartwright gas well, late in the week was drilling below 3,400 feet. The same company's No. 1 Roberts, William Harrison Survey, a northward trend test, has just recently started drilling. Three other locations are reported having been made definitely, but no actual work has been done. Much of the expected impending drilling development seems to be held up pending completion of an "oil" well and revelation of further information concerning the area by tests already under way.

Barbers Hill

Among the best wells which have been completed in some time on the Gulf Coast was Mills Bennett Production Co.'s No. 3 Means on the east side of the Barbers Hill Dome, Chambers County. This well, in the 4,400-foot Miocene sand which is being actively developed there and which is being tapped high up on the dome underlying the salt overhang, came in flowing at the rate of 1,620 bbls. daily, through a half-inch choke, but has shown a steady increase and now is making better than 2,200 bbls. of pipe line oil. Pressure of the well is 360 pounds. Sand is at 4,412-45 feet with 39 feet of screen in the hole.

This is one of the closest in wells which have been drilled there, although the circle of production constantly is being moved inward toward the center of the dome as development moves higher and higher up on the dome. A location already has been made for No. 4 Means, which is 150 feet still closer in to the center. Texas Gulf Producing Co. also is drilling an offset to the Means well in its No. 3 Ilfrey, located 50 feet to the west. Mills Bennett Production Co. made location for another important inside test the past week in its No. 3 Kirby, which is 645 feet east and 40 feet south of the northwest corner of the tract. This test will attempt to extend this most inside circle of production on the east flank farther northward around the dome. Derricks are up for these new tests as well as for another new one to be drilled by Sun Oil Co. on its Higgins tract on the extreme southeast side of the dome. The latter, No. 3, is a west offset to McAlbert Oil Co.'s No. 2-B Higgins, now drilling, both of which are following the new inside production line to the southeast side of the dome.

New Exploration

From a standpoint of new exploration at Barbers Hill Mills Bennett Production Co.'s No. 1 Gulf fee on the south side of the dome is holding the center of interest. This test, which is trying to prove an overhang on that side of the dome, late in the week was drilling in salt at 6,292 feet. Salt was topped at 1,706 feet and except for a 12-foot break in which some shale was encountered, 4,586 feet of salt has been drilled. This is the most salt ever drilled by considerably over 1,000 feet. This test is a few hundred feet north of the circle of deep sand wells drilled by Yount Lee Oil Co. and Sun Oil Co. several years ago just off the edge of the dome. On the northwest side of the dome Texas Gulf Producing Co. is making the same kind of a test in its No. 7-A Barber, which at latest report was drilling at 5,668 feet in salt topped at 2,920 feet, or 2,748 feet in. Rio Bravo Oil Co.'s No. 3 Fisher, on the west flank, which also set out to hunt possible subsalt sands there, has met with a set back having stuck drill stem in cap rock at 4,166 feet where it has been fighting cavity.

Rabbs Ridge

Deep sand production at Rabbs Ridge, Fort Bend County, received another extension during the week with the completion of Gulf Production Co. and Humble Oil & Refining Co.'s No. 2 T. R. Booth. This well at a total depth of 5,096 feet came in flowing 30 bbls. an hour, or at the rate of 720 bbls. daily, through a three-eighths inch choke, pressure 625 pounds. It is on the extreme north end and 600 feet east of another producer, No. 1 Booth. An extension of production westward is seen in Humble Oil & Refining Co. and Gulf Production Co.'s No. 2-B Lockwood & Sharp, which is in sand showing oil at a total depth of 5,186 feet. Casing has been set for a test. The Texas Company's No. 1 Wolters, a half mile north of the field, and which is expected to prove an important test in view of the continual extensions which have been made in the productive area, has started drilling.

New Activity at Hull

Completion of D. & L. Production Co.'s No. 1 Hannah-Pevito, southwest side of Hull, as an 800 to 1,000-bbl. well, probably will result in new drilling activity for that area. Three additional locations, derrick being up for one, have been made there. This well, in a sand at 4,320 feet, follows the completion several weeks ago of Eclipse Oil Co.'s No. 1 Barrow in the same sand. These wells have made a substantial extension of Hull production.

High Island Development

An enlarged development program is expected to be carried on at High Island, Galveston County, where a series of good wells has been completed within recent months from a comparatively new deep sand around 5,300-5,400 feet. The latest of these wells was No. 27 Cade, which came in good for 1,400 bbls. daily through a half inch choke with two joints of screen in the sand at 5,312-49 feet. Yount Lee Oil Co., which controls the entire field, has had three rigs running. Locations were made recently for four additional tests. The company has just completed a 12-inch pipe line from the field to Beaumont, a distance of between 40 and 45 miles, furnishing the field its first pipe line outlet although it is one of the older coastal domes.

Two additional wells were completed the past week in the shallow sand which is being developed in a small play on top the dome on the east side. There, The Texas Company, Sun Oil Co. and E. M. Wilson have been drilling a series of wells, in which production is found in a sand around 1,400 feet. The more recent wells are The Texas Company's No. 24 Wheeler & Pickens, 150 bbls. net, 8 per cent base sediment and water, 1,444 feet, and Sun Oil Co.'s No. 52 River, 40 bbls. net, 1,477 feet. Three additional tests now are drilling in that immediate area.

Other Completions

Other completions of the week included Rio Bravo Oil Co.'s No. 7 fee, west flank of Humble, deepened from 4,126 to 4,178 feet, pumping 96 bbls. net oil, 50 per cent water; the same company's No. 135-A Cotton, Saratoga, pumping 11 bbls., 549 feet, and Heywood & Heywood's No. 2 Jennings fee, Jennings, La., pumping 4 bbls. net oil, 50 per cent water, 1,825 feet. Republic Production Co.'s No. 63-A Dolbear, Hull, completed two weeks ago as a 3,000,000-foot dry gas well at 2,397 feet, has started spraying oil and at latest report was making around 75 bbls. daily through a five-eighths inch choke. The oil is 37 gravity.

Damond Mound

Intercoastal Oil Co. (Layne and others) has abandoned its No. 9 Wisdom at Damon Mound, Brazoria County, drilling into heaving shale to a total depth of 4,188 feet. At Brookshire, Sloan & Gans' (Farrington and others) No. 1 Jackson has quit in cap rock at 3,344 feet.

Gueydan Dome

Pure Oil Co.'s No. 2 Alliance Trust Co., recently completed as the discovery well of the Gueydan Dome, Vermillion Parish, Louisiana, has been killed and will be deepened. Present bottom of the hole is 3,552 feet, in which sand it came in flowing initially at the rate of 800 bbls. daily. Production of the well has been declining with a corresponding increase in water intrusion. For two weeks the well has been making around 200 bbls. net oil but within the past several days production took a sudden drop below that. Location for No. 1 Mulvey Irrigation Co., 253 feet south and 390 feet east of No. 2 Alliance is standing pending work on the discovery well.

Manvel

The Texas Company also has gone back for a second time into its No. 2 Belcher at Manvel, Brazoria County. This well, the second producer in that field, originally was completed early in March at a depth of 5,602 feet. It later was deepened to 5,732 feet, plugged to 5,685 feet and completed a second time. Again failing to hold up, and making considerable water, screen has been pulled and the hole is drilling deeper in sand and shale at 5,752 feet.

McFaddin District

T. B. Slick estate's No. 2 McFaddin, wildcat in the J. Varian Survey, southwestern Victoria County, has run 9-inch casing on a sand at 4,485-94 feet. In a drill stem test, the sand showed 650 pounds gas pressure but because of previous showings of oil a screen test is to be made in anticipation of a possible oil producer. This well is 3,500 feet to the northwest of No. 1 McFaddin, a dry gas well in a sand at 3,500 feet. These two wells are some 3½ miles to the north of what has been termed the McFaddin district.

GULF COAST FIELDS AND WILDCATS

Week Ending May 14

RACCOON BEND—AUSTIN COUNTY

Company, farm and location—	Remarks:
Humble O. & R. Co.'s No. 2 McCasland, Wm. C. White Sur., 600 ft. southeasterly along SW line from NW cor. thence 200 ft. northeasterly at right angles	Location.

DAMON MOUND—BRAZORIA COUNTY

Intercoastal Oil Co.'s No. 9 Wisdom, S 45 deg. 312 ft. from NE cor. Lot C, Blk. 62, A. Darst Sur., and thence S 45 deg. 325 ft. in Lot A	Heaving shale 4,188 ft.; abd.

BARBERS HILL—CHAMBERS COUNTY

R. E. Ferrell's No. 2 Wilburn, Henry Griffith League, 215 ft. W of No. 1 in center of 45-acre tract	Drlg. lime 2,527 ft.
Gulf Prod. Co.'s No. 8 Wilburn, Henry Griffith League, W of No. 7	Hard sand showing oil 4,332-56 ft.; cmtd. 7-in. csg. 4;316 ft.
Humble Oil & Ref. Co.'s No. 1 Kirby, Henry Griffith League, 520 ft. N along E line from SE cor. of tract, thence 75 ft. W at right angles, thence 75 ft. N at right angles	Location.
McAlbert Oil Co.'s No. 2-B Higgins, Wm. Hodges Sur., 265 ft. from N line and 50 ft. from W line of tract	Cored sand 4,086 ft.
Mills Bennett Prod. Co.'s No. 1-B Gulf fee, Wm. Bloodgood Sur., 500 ft. E and 50 ft. N of SW cor. of "B" lease	Drlg. salt 6,292 ft.; top of salt 1,706 ft.
Mills Bennett Prod. Co.'s No. 4-A E. W. Barber, Henry Griffith League, 300 ft. W of No. 3-A, 50 ft. N of S line	Spudded.
Mills Bennett Prod. Co.'s No. 3 Kirby, Henry Griffith League, 645 ft. E, 40 ft. S, NW cor. of tract	Derrick.
Mills Bennett Prod. Co.'s No. 3 J. C. Means, Henry Griffith Sur., 300 ft. W of No. 2 in center of strip	Set 39 ft. of 7-in. screen 4,445 ft.; comp. flowing 1,620 bbls. P.L. oil, 360 lbs. pressure, ½-in. choke.
Mills Bennett Prod. Co.'s No. 4 Means, Henry Griffith League, 150 ft. W of No. 3	Derrick.

(Continued on Page 101)

Government Wells Extension Extended

New Well Made 500 Bbls. in Six Hours and Has Stimulated Drilling Activity in That Area. Many New Locations Made

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., May 16.—The event of the past week in Southwest Texas was the completion of Smith & Capps' No. 2 Duval County Ranch Co. in Survey 574 of Duval County, 2 miles southwest of the Government Wells extension, and briefly mentioned in late field news in The Oil and Gas Journal last week. This test perpetuates the leases on 10,000 acres held by The Texas Company and the No. 1, a gas well drilled a quarter mile southwest, perpetuated the leases on 8,000 acres for the same company. The tests, however, are on the west edge of the lease on the Duval County Ranch Co.'s property and Texas, Sun and Magnolia must all drill offsets at once. It means immediate drilling in that territory by three major companies and undoubtedly additional drilling by Smith & Capps.

The Texas Company owns offset acreage northwest of Smith & Capps' No. 1 and the same acreage has a diagonal offset to the oil well. Sun has 160 acres southeast of the gas well and the same acreage calls for a diagonal south offset to the oil well. Magnolia has a direct southeast offset to the oil well to drill. The big question is whether the new producing spot will take a direct north and south trend as did the Government Wells extension field or will run northeast and southwest and tend to merge with the extension. On that question depends who has the choice acreage, but judging from the geography rather than geology, Sun has 320 acres, Magnolia 160 and The Texas Company quite a chunk of very choice acreage in addition to the 240 held by Smith & Capps.

To Connect With Pipe L'ne

Smith & Capps' No. 2 Duval County Ranch Co. filled a 500-bbl. tank in six hours without any choke and was pinched to 60 bbls. an hour on quarter-inch choke. Humble Pipe Line Co. is to lay a line at once. This will require only about 2 miles of line extending from the Government Wells extension field.

The extension field has proved to be a better producing spot than the original Government Wells Pool a mile north of it and the new production is starting off equal to the extension. They are all three producing from the same sand at about the same depth. The extension field with a total of 22 producers completed up to this time has produced 1,360,000 bbls. down to April 30 and the discovery well was brought in in December, 1930.

The Texas Company is making location for a test 1 mile east of the Smith & Capps' well in the north corner of Survey 127 and presumably it will be 150 feet from the northwest and northeast lines. Sun Oil Co. is to make a location about 700 feet south of the Smith & Capps' No. 2 and presumably it will be 150 or 200 feet from the northwest and northeast lines of the southeast half of Survey 576 and The Texas Company is due to make a diagonal west offset to the Smith & Capp's No. 2 which will be about 700 feet west and Magnolia is due to make a southeast direct offset to the Smith & Capps' No. 2.

One and a half miles due south of Smith & Capps, John F. Camp got a dry hole on the Weil land and has abandoned it at 2,523 feet, but he has leases that will give him an opportunity to move in closer to the two producers.

Suttle and others' No. 1 Bennett, Survey 44, 3 miles north of Government Wells Field in Duval County, Saturday on drill stem test shot a stream of oil over the crown block in two minutes. It is now setting casing. Total depth is 2,312 feet. A few weeks ago Seacord and Putnam's No. 1 Johnson, a half mile west, came in from sand at 1,567-74 feet for 10,000,000 feet of gas, otherwise the nearest production to the Suttle well is the Government Wells Field.

Coming fast on the heels of the opening of a big pool at the south end of the Government Wells district by the completion of the Smith & Capp's No. 2 Duval County Ranch Co. in Survey 574 for an initial flow at the rate of 2,000 bbls. per day, the Suttle test will attract wide attention to the district.

Suttle's No. 1 Bennett is 150 feet from the north and east lines of the NE SW of Survey 44 and Seacoard and Putnam's No. 1 Johnson is 150 feet from the south and west lines of SW NW Survey 44.

The Texas Company is making a location in Survey No. 162, a mile or so north of the north end of the Kohler Field and several miles southwest of the two new Smith & Capps wells in Surveys 576 and 574. It is evidently intended to pick up the line of production of the Kohler Field and carry it farther north.

Balcones Fault Zone

Considerable interest in the Balcones Fault zone is shifting to western Bexar County due to the American Gas Co.'s No. 5 Kennon now down nearly 2,100 feet and in formation identified as Glenrose. This test was originally drilled to 2,030 feet several years ago. It went into the Edwards lime at about 1,200 feet and at the time when it was shut down at 2,030 feet was presumed to be still in the Edwards lime. Now when drilling was resumed it is discovered to be about 300 to 350 feet into the Glenrose. The intention is to make a very deep test unless production is had in sufficient volume to warrant stopping and completing, before it gets to a depth that can be classified as "very deep."

It is figured now that there was no Comanchean Peak in the log of the well and only a thin slice of Walnut Clay and the absence of these formations is causing the estimate that the log is running high in the Glenrose.

So few tests have ever gone into the Glenrose and especially into the Travis Peak and formations below that along the Balcones Fault that interest naturally accumulates on any well headed for the lower formations in this zone. Humble some years ago on the Oppenheimer a few miles southeast of Gas Ridge got a showing in the Trinity and other than that the Trinity has not been touched along the Balcones between Mexia and the Rio Grande. The Magnolia in a test near Mexia some years ago got quite a lot of gas in a test to the Trinity and in Maverick County on the Rio Grande the Rycade on the Chittim ranch got production in the Trinity Beds.

Moore-Jauer's No. 1 Ellison, located about 7 miles northwest of Gas Ridge and started in November, 1928, has been standing at 2,170 feet with casing corkscrewed in the hole. Recently it has resumed operations and is whipstocking past the obstruction and will carry the well on down into the Pennsylvanian unless it runs into granite. This test, with an elevation of 859 feet, topped the Georgetown at about 300 feet. In connection with the other test this Moore-Jauer test is also interesting and important.

Webster Pool

In the two new producing spots in Caldwell County, C. J. Webster Oil & Gas Co. completed making a plane table survey of its block of leases around No. 1 McCrory and has made location for No. 1 C. F. Robertson approximately 2,400 feet southwest of No. 1 McCrory and 700 feet from the east line and 200 feet from the north line of the Robertson 100-acre tract. Working on the "drag" theory the location is slightly farther to the southeast from the faulting in the Edwards. Two surface fault exposures are to the southeast. The new location is expected to get the Edwards slightly higher. It is claimed there is about 350 feet of displacement which would be ample for big production.

A steel derrick is now being moved in for this test and it will take about two or three weeks to drill the well. At least one other location to the northeast of the first producer will also be drilled in order to work out the trend of the pool and determine the proven acreage and assist in making future locations, with the expectation that a pool will be worked out about 1½ miles long and probably three or four locations wide.

Everything in the other end of the county northwest of the town of Luling is waiting on Rayor's No. 1 Kreus in the Schupe Survey, which topped the chalk at around 2,288 feet with an elevation of 481 feet which is not considered high by some at least though it may cut the fault and get the formations high below the chalk. It will be well into this week before it is in the Edwards and learns its fate. In the meantime Bob Rose's No. 1 Pierce is still putting out a lot of oil though choked down.

Westbrook has made location for three wells in the Chapman Field in Williamson County and Campbell & Tong have made location for one in the Yost Field in Bastrop County.

New wildcatting is developing in a number of places. Pierce of Gonzales blocked 12,000 acres, the block being about 2 miles wide and extending from southwest of Pilgrim in the southern part of the county to northeast of Pilgrim and has turned the middle 6,000 acres to the Luling Oil & Gas Co., which will drill a test on it starting within 60 days.

J. M. Patterson of San Antonio has a block of 8,000 joining Pierce on the northeast. There is no immediate drilling requirement on it. In the northern part of the county, Kirby Petroleum Co. has taken a big block of around 8,000 acres from Pierce of Gonzales, the block beginning at Ottine on the southwest and extending northeast, lying next southeast of the Sullivan-Shell block on which they are starting a deep test.

On the north there are some new outbreaks of wildcatting in Milam County. Michalk & Clark, who last year drilled No. 1 Johnson in the Juan Jose Acosta Survey in the southwest part of the county north of Thorndale, and for some days had the industry expecting the opening of a new field, but finally lost the hole, are starting to drill another 60 feet from the first.

Pettus District

Coquat & Hawn failed to make a well in No. 1 Roberts, half way between the Cosden Pool on the north and the Pettus extension on the south in Bee County, and only about half a mile from either. It was abandoned last week at 4,125 feet and the pay sand in the Cosden Pool is at 3,650 feet and in the Pettus extension at 3,900 feet. Cores showed the formations standing on edge indicating a fault separating the two fields.

There was another disappointment south of that in the Normanna Field when Gulf Coast Oil Co. at 4,595 feet abandoned its No. 1 Hicks, 300 feet south of the Nichols Oil Corp.'s producer and discovery well on the Hicks. However, The Texas Company is proceeding to rig up on the No. 1 Scott, a few locations to the east.

Northeast McMullen

Several tests are to be forthcoming in the northeastern part of McMullen County where Jacob, Buzzini & Pickett recently brought in an oil well about 5 miles north of the Calliham Field. Jacob, Buzzini & Pickett are starting their No. 3-A, 750 feet northwest of the No. 2-A, which is good for around 150 bbls. or more on the pump and is flowing about 75 bbls. a day with the tubing 150 feet off bottom. The No. 1-A is a gas well at shallower depth.

Longhorn Oil Co. and American Gas Co. are moving in on a location on the Lark farm a half mile or more southeast of the new discovery oil well and a few

(Continued on Page 94)

SOUTHWEST TEXAS PROVEN AREAS

Week Ending May 7

YOST FIELD—BASTROP COUNTY

Campbell & Tong's No. 8 Yost, 300 ft. SE of No. 7 Yost, A. Garcia Sur. ..... Location.

COSDEN POOL—BEE COUNTY

Henderson Coquat's No. 1 Leroy Roberts, 300 ft. from W line of lease, 300 ft. N of NE cor. of Gremmel tract ..... Drlg. 4,058 ft.

NORMANNA POOL—BEE COUNTY

Gulf Coast Oil Co.'s No. 1 Hicks, 300 ft. S of Nichols Oil Co.'s No. 1 Hicks ..... Abnd. 4,595 ft.

PETTUS POOL—BEE COUNTY

The Texas Company's No. 4 Gremmel, 450 ft. W of No. 3 Gremmel in (south) John Pace Sur. ..... Set csg. 3,877 ft.; to complete.
United Prod. Co.'s No. 42 Ray, near No. 31 Ray ..... T.D. 1,800 ft.; drlg.
United Prod. Co.'s No. 43 Ray, NE of field ..... T.D. 283 ft.; set surface csg.

COOKSEY POOL—BEXAR COUNTY

Chiquita Oil Co.'s No. 2 Pollock, 330 ft. from S line and N offset to Chiquitas No. 1 Hunter in J. W. Rialls Sur. ..... T.D. 1,530 ft.; bailing.
L. W. Stieren's No. 1 Annie Terrell, 150 ft. from N and E lines of lease in J. Martinez Sur. ..... T.D. 1,604 ft.; abnd. dry.

ECKERT POOL—BEXAR COUNTY

Alamo Nat. Gas Co.'s No. 3 J. H. Gembler, 180 ft. from N and E lines of tr. in A. Manachaca Sur. 51.. C.D. 1,216 ft.; drlg.
E. M. Carl's No. 1 F. Gembler, 160 ft. from N line, 750 ft. from E line of tract in J. Montez Sur. ..... Location.
F. H. Eckert & Son's No. 1 Louis Brehm, W offset to No. 3 John J. Brehm ..... Location.
Gatlin Oil Co.'s No. 11 I. A. Beck, 700 ft. from SE line, 156 ft. from SW line of tr. in J. Montes Sur. .. T.D. 495 ft.; drlg.
Gatlin Oil Co.'s No. 11 I. A. Beck, 700 ft. from SE line, 156 ft. from SW line of tr. in J. Montes Sur. .. T.D. 495 ft.; drlg.
W. K. Oil & Gas Co.'s No. 4 Strunk, 300 ft. E of No. 3 Strunk ..... T.D. 700 ft.; set csg.

GAS RIDGE—BEXAR COUNTY

American Gas Co.'s No. 5 W. H. Kennon, 1,750 ft. from S line, 2,000 ft. from E line of 400-acre tract in Maria F. Rodriges Sur. ..... T.D. 2,063 ft.; drlg.

(Continued on Page 105)

Increased Activity in Old Lima Field

Gas Being More Sought Than Oil. Five Wells Reported in Stark County. Indiana, Illinois and Kentucky Operations

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, May 16.—More active development is being shown in many parts of the old Lima Field. Gas is more sought than oil and the drilling will to a large extent be done on the outer edges of the old Trenton Rock area.

A wildcat drilled by the Simms Oil Co. on the Bernice B. Potter farm, Lot 9,974, Rush Creek Township, Logan County, developed a small gas well, which will be used to supply the line to Belle Center, Ridgeway, Mount Victory and outlying towns along the division lines between Logan and Hardin Counties and probably will supply the many cottages around Lewiston Reservoir, in the northwestern part of Logan County. Reports are that 10 additional wells will be drilled in the area in hopes of securing an ample supply of gas for the small towns and villages.

Another important test attracting much attention is being drilled by Kelly Brothers Co., on the Lunne farm, a mile north of Kalida, in Putnam County. The territory in this county never attracted attention until recently, and being in the path of the old Trenton Rock Field may bring a surprise to those interested. The company held leases on a block of 1,079 acres, and leased another block of 1,800 acres, and will test both areas.

In the Tiffin Field, Seneca County, J. H. Murphy & Sons drilled in a light gas well with a showing of oil from 1,462-96 feet on the Fay E. Sparks, Section 11, Hopewell Township. In this same township, McPheron and others are drilling No. 3 Frank Fox farm, same section. Industrial Oil & Gas Co. is drilling No. 1 Mathies W. Hunker farm, also in Section 11, Hopewell Township. Ray Temple is drilling on the Ray Knepper farm, same section. Jones and Coyle are drilling on the James D. Watson, Section 28, Seneca Township.

Bert Sheldon is drilling on the Ora Rush farm, Section 31, Blanchard Township, Hardin County, and in Pleasants Township, same county, Trager heirs are starting a test on their own farm, Section 7.

Erie Oil & Gas Co. is starting a test on the Oscar Margraff farm, Section 8, Tymochtee Township, Wyandot County, and Jones and Coyle have started drilling No. 1 Dasie Smalley farm, Section 33, Crane Township, same county.

CENTRAL OHIO

Out of seven completions in the Central Ohio Field, five wells were reported from Stark County and one each in Meigs and Medina Counties. There is the usual drilling activity in this field, but the deep wells require a long time to complete after spudding. In the more shallow areas they are completed within a week.

The East Ohio Co. brought in three wells, all gas producers. No. 1 on the J. and C. Albright farm, Section 8, Jackson Township, Stark County, from 4,174-98 feet; No. 2 Leo Franks farm, Section 14, same township, from 4,411-26 feet, and No. 5 T. K. Harris farm, Section 25, same township, from 4,429-55 feet. Same company is drilling No. 3 John Strouble farm, Section 26, and No. 2 George H. Chales farm, Section 24, and starting No. 4 Howard B. Fawcett farm, Section 17, all in the same township.

The Ohio Fuel Gas Co. drilled in a gas well in No. 4-5,641 on the Bruce Crissinger farm, Section 16, Jackson Township, and Brendall and others drilled in a nice gas well in No. 5 J. C. Steiner farm, Section 16, same township, at 4,-314 feet. White & Bacon are drilling No. 2 Besse J. Slagel, Section 14. W. F. Shetler is reported shut down at his No. 1 on the A. L. Funk, Section 22, and Brendall and others are drilling No. 1 J. O. Young, Section 26, also in Jackson Township, Stark County.

In Medina County, Chatham Township, Edson Sons Co.'s No. 36 George W. Packard, Section 13, is reported dry in the shallow sand at 406 feet. Same company is starting No. 23 on the W. A. Shaw, Section 10, and Oko Oil & Gas Co. is drilling No. 31 Sanford-Watson, also in Section 10, same township.

C. J. Minor is drilling on the George Myers farm, Lot 41, Ridge Township, Lorain County.

Commonwealth Gas Corp. has a rig on the Roy B. Dickson, Section 24, Jefferson Township, Richland County.

In Muskingum County, Hopewell Gas & Fuel Co. has a rig in for No. 3 Daniel Weaver, Section 10, Brush Creek Township. Same company has a rig on the J. C. and F. Daton, Section 21, Washington Township, Tuscarawas County, and Capital Drilling Co. has a rig in for No. 5 Louis Little farm, Sections 32 and 33, same township and county.

In Fairfield County, City Natural Gas Works is drilling No. 4 E. Ruff farm, Section 2, Berne Township, and No. 5 Henry Hartman farm, Section 23, Pleasants Township, same county.

In Guernsey County, Monroe Township, E. C. Quillan and others are drilling a test on the A. K. and W. E. Shearer farm, Section 5.

In Belmont County, Somerset Township, Bradford and others have a rig in for a second test on the T. A. McCourt and J. Patterson farm, same township.

Chesrown and others concluded to pull out and abandon their No. 1 on the Samuel Simpson, Section 9, Franklin Township, Richland County.

INDIANA

Indications point to a considerable activity in many parts of the Indiana fields during the coming summer. This work is due to the hunt for gas as well as for oil, as good producers have been brought in the past few months, with the largest gas wells ever found in the State, the Knox Engineering Corp.'s test on the Charles C. Steele farm, NE NE, Section 22, Columbia Township, Gibson County, and the Wabash Public Service Co.'s No. 2 G. B. Allen farm, NE, same section, rated as 7,000,000 feet initial, followed by a 200-bbl. oil well drilled by the Big Four Oil & Gas Co., in No. 1 Robert Huey farm, SE, Section 18, Washington Township, same county. Wells of that caliber have brought a rush of lease men to secure holdings not alone close to the

(Continued on Next Page)

Turner Valley Conservation Begins

Gas Flow Ordered Reduced to Maximum of 196,417,000 Feet With Potential Crude Naphtha Recovery Down to 1,800 Bbls.

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, May 14.—The newly constituted Gas Conservation Board for Alberta, recently appointed to control operations in the Turner Valley Field, has ordered the reduction of the aggregate gas flow from Turner Valley to a maximum of 196,-417,000 feet a day. The order became effective May 9. This figure allows a potential crude naphtha recovery of approximately 1,800 bbls. a day. This output compares with average daily pipe line runs in April of 2,188 bbls. These April deliveries were supplemented by a considerable amount of naphtha sold direct to consumers at the wellhead. The restriction will thus mean a potential reduction in daily output of more than 400 bbls.

Under the new restriction, independent companies are allowed 71,545,000 feet a day, with a potential naphtha recovery of 704.7 bbls. This compares with daily average pipe line runs, in March, of 801 bbls. Imperial Oil, Ltd., contract companies, are allowed a flow of 45,691,000 feet with potential naphtha recovery of 440.3 bbls. a day, comparing with pipe line runs of 443 bbls. a day in March. Imperial subsidiaries are allowed 79,-181,000 feet a day with potential recovery of 655.6 bbls. of naphtha, compared with actual runs of 947 bbls. a day in March.

Among the Imperial subsidiaries, Royalite Oil Co., the major producing company in the field, is given a gas quota of 45,488,000 feet a day, permitting a naphtha yield of 195.9 bbls. as against previous deliveries of 340 bbls. a day.

The board has opened its office in Calgary. At the organization meeting, Judge A. A. Carpenter, chairman of the Alberta Public Utilities Commission, was elected chairman. Dr. R. C. Wallace, president of the University of Alberta, and John McLeish, of the federal department of mines, are his colleagues. Frank P. Fisher of Mount Vernon, Ohio, technical advisor to the Alberta government in regard to gas conservation, will continue as advisor of the Gas Conservation Board and will assist in organizing the field tests.

The present order restricting the flow is understood to be merely tentative, and may be modified by subsequent orders during the testing period. Conservation will be enforced by a check on naphtha production based on the oil-gas ratio and not simply upon the gas flows allotted to each well, as it is felt the latter system would permit evasions.

The board has announced the appointment of field engineers for testing and inspection purposes, the staff comprising C. W. Dingman, G. R. Elliott, J. O. G. Sanderson, Russell V. Johnson and F. W. Shelton. Mr. Dingman will be in charge of the field office.

A statement issued by the board says: "It is realized that under the restricted flow the gas-naphtha ratio will be modified, and this ratio will be checked by the field engineers, and you will be advised of the modified naphtha allowance as rapidly as the tests can be made." Testing of the field is expected to cover a period of about three months.

Pipe Line Runs

Deliveries by Turner Valley companies to the various refineries in April totaled 65,691 bbls., comparing with 71,583 bbls. in March. Deliveries to Imperial Oil, Ltd., included 6,907 bbls. of crude naphtha, 48,037 bbls. of discolored naphtha and 6,491 bbls. of light crude, a total of 61,485 bbls.; comparing with a total of 64,771 bbls. in March. Deliveries to Bell Refining Co. amounted to 1,054 bbls., as against 2,587 bbls. in March; and deliveries to Regal Oil & Refining Co. ran 3,152 bbls., compared with 4,475 bbls. in March.

Actual production from the field in April was considerably larger than these totals, the difference representing several thousand barrels sold direct to consumers at the wellhead.

Royalite Oil Co. was the major producer, with a total of 9,237 bbls. for the month. The ranking producers were: Merland Oil Co., 6,388 bbls.; Mercury Oils, 6,355 bbls.; Southern Lowery, 6,137; bbls.; Mayland Oil Co., 5,890 bbls.; Sterling Pacific Oil Co., 5,247 bbls., and Model Oils, 5,006 bbls.

Under the new prorating scheme, production for May will run around 55,801 bbls.

South Turner Valley

In the South Turner Valley, Miracle Oils' No. 3, LSD 11, Section 4-19-2w5, has recovered the tools dropped when the old derrick burned some months ago, and is cleaning out the hole. The well is bailing around 22 bbls. of 45 gravity crude per day from the lime at 6,150 feet, as against an initial showing of 15 bbls. The test will likely be deepened in the lime. This is the first production of crude oil from the lime in South Turner Valley, other wells in the same horizon yielding naphtha.

Hylo Oils' No. 1, LSD 12, same section, has finished recementing 6¼-inch casing on top of the lime at 5,501 feet. The test is now drilling out cement before going into production.

Canadian Royalties No. 1 (formerly Spray Oils' No. 1) LSD 9, Section 5-19-2w5, resumed work recently after standing since 1930. The test is now making new hole below 2,310 feet. It is planned to carry the 12⅜-inch casing to the Blairmore horizon. The location is some distance west of the Mercury producers.

In the extreme south end, Mar-Jon-Freehold's No. 1, LSD 9, Section 28-18-2w5, is reported down to 3,560 feet and preparing to change from cable to rotary tools. This is the farthest south test now drilling.

Harvey Price of Calgary has been elected president and managing director of East Crest Oil Co., operating in Section 16-19-2w5. Other officers are: Vice president, A. M. Robertson; secretary-treasurer, H. M. Stamples; directors, Dr. W. E. Spankie, H. H. Gilchrist, James Perry, Thomas Lees.

Central Turner Valley

In Central Turner Valley, McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, is reported cleaned out to the old bottom in the lime around 3,850 feet and is preparing to deepen for increased produc-

Phillips 66

AMAZING GAIN IN SALES

Jobbers increase their volume 50% to 200%

Because of:

"HIGHEST TEST"

(When we say High Test we say How High)

at the price of ordinary gasoline

The all-time record in winning the greatest number of car owners in the shortest time undoubtedly belongs to Phillips 66—the greater gasoline.

Jobbers quick to recognize this demand of motorists are enjoying immediate, amazing gains in sales—up to 200% in three months. Names and proof on request.

Phillips ETHYL

The low carbon content of Phillips bright stock makes an ideal motor oil for high compression engines.

Good territory open for responsible jobbers. Write or wire.

Also Phillips 66 Ethyl at the regular price of Ethyl gasoline

Phillips Petroleum Company
Bartlesville, Oklahoma

tion in the lime. McLeod's No. 4, same LSD, is deepening in the Banff shales below 5,560 feet. This horizon has never previously been reached in drilling operations in the Turner Valley.

North Turner Valley

In the North Turner Valley, Model Oils' No. 2 (formerly Anaconda Oil Co.'s No. 1) LSD 16, Section 22-20-3w5, is reported redrilling from 3,700 feet after cementing back from 3,750 feet on account of caving formation. The test is working in the Dakota formation.

Tests in the Foothills

On the Fisher Creek structure in the foothills west of Calgary, Cotton Belt Mines' No. 1, LSD 5, Section 21-21-4w5, has run into a crooked hole around 2,625 feet. The well was given a small shot and is now cleaning out and underreaming.

On the Moose Mountain structure, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is standing cemented for water shutoff around 3,342 feet.

To Drill Four Gassers

An important drilling program in the Viking and Kinsella Fields of East Central Alberta has been announced by Northwestern Utilities, Ltd., of Edmonton, through Manager Julian Garrett. The 1932 program involves the drilling of two wells in the Viking Field, from which the company now draws its entire natural gas supply, and two additional wells in the Kinsella Field.

In the Viking Field, Northwestern Utilities' No. 24 is reported resuming at 770 feet after cementing against water. The Viking gas sand is around 2,200 feet. Northwestern's No. 25 has derrick up and is installing, and the crew will be moved to this test as soon as No. 24 is finished. Standard tools are being used, and both these and the Kinsella tests will be under the general direction of Garrett W. Green, superintendent.

The company has decided to further increase its reserve gas supply by drilling two tests on acreage secured some years ago in the Kinsella Field. In this area, Northwestern Utilities' No. 1 Harvey has spudded in, and No. 2 Harvey will start work about the end of the month, with the rig from Northwestern's No. 24 in the Viking Field. The Kinsella locations are between 6 and 8 miles south of the discovery well, drilled several years ago by the Duluth Syndicate in LSD 3, Section 29-48-19w4. The latter well got a gas production, currently reported 40,000,000 feet a day, at 2,085 feet, and has since been shut in for lack of a market. The Duluth Syndicate was later incorporated as Messaba Oil & Gas Co. and No. 2 well located in LSD 1, Section 11-48-19w4, some distance south and east of No. 1. Efforts by the Messaba interests to secure a market for the gas in Saskatchewan were unsuccessful, and No. 2 never started drilling. The present activities by Northwestern Utilities, Ltd., represent the first active drilling in the Kinsella Field since the discovery well got production and will give some indication of the extent and importance of the field.

Northwestern Utilities, Ltd., has 22 producing wells in the Viking Field, two of which are under lease from Hudson's Bay Oil & Gas Co.; and the aggregate open flow is estimated at 110,000,000 feet a day. Rock pressure is standing up, tests last fall showing initial average of 607 bbls., and after being blown and allowed to stand 24 hours the average final pressure was 633 pounds. The company's drilling appropriation for the four wells is $82,000. Gas is supplied to Edmonton and intermediate points.

Drilling in Ontario

In the Tilbury Field, Kent County, Ontario, Ralph Dawson's No. 3, S half, Lot 3, Concession 15, Tilbury East Township, is being drilled in and looks like a small gasser. At last report the test, bottoming at 1,290 feet, has encountered small flows of gas at 1,220 feet and 1,280 feet.

In the north end of the D'Clute Field, Union Gas Co.'s No. 20 D'Clute, Lot 21, Concession 10, Raleigh Township, is drilling around 900 feet.

On Pelee Island, Essex County, Joseph Hussey has a test rigged up for Pelee Oil & Gas Co. on the Theodore Rinkle farm.

In the Oil Springs Field, Lambton County, the old Fairbanks gusher southeast of Oil Springs, recently deepened and shot by Sarnia Oil & Gas Co., is reported maintaining an indicated open flow of 6,500,000 feet a day. The Fairbanks well, which started the Oil Springs deep gas boom of 1914, originally got 2,000,000 feet a day at 1,898 feet, and on deepening at that time got 11,000,000 feet. It was erroneously reported much larger, and the strike resulted in considerable drilling activity which resulted in the development of the Dawn Field, farther south. An offset well later decreased the flow of the discovery well, and it was abandoned. It is claimed that when reopened recently it was found that salt leaking into the hole above the gas horizon had capped off the well, while a pump left in the hole was filled with salt from a lower stratum. A shot in the old producing sand brought the production to 6,500,000 feet a day. Sarnia Oil & Gas Co.'s No. 2 will be drilled northwest of the Fairbanks well and south of the main street of Oil Springs.

In Euphemia Township, Lambton County, Lambton Oil & Gas Syndicate's No. 2 shallow test for oil, NW, Lot 27, Concession 9, has finished a dry hole at 415 feet. Only a slight trace of oil was encountered. The location was 530 feet east and 100 feet south of No. 1 discovery well in SW, Lot 28, Concession 9, which got a fair initial flow, estimated at 35 bbls. a day, at 308 feet. The rig has been moved back to No. 1 to clean it out.

In Brooke Township, Lambton County, Michigan Pacific Oil & Gas Co.'s No. 1, Lot 10, Concession 12, has been drilled to 2,637 feet, some 291 feet in the Big Red formation, and will likely be abandoned. A very small oil show was met at 2,005 feet, which may be shot.

In the west end of the Dawn Field, Union Gas Co.'s No. 61 has been located in the NW, Lot 23, Concession 2, Dawn Township, and is rigging up to test for gas in the Dawn sand. Farther west, in Sombra Township, Dawn Oil & Gas Co.'s No. 1, Lot 25, Concession 9, is abandoned, and a new test will likely be started farther south and east in about two weeks.

Red Coulee Field

On the Montana end of the Red Coulee structure, Askalta Oils' No. 3 Farbo, offsetting the company's two previous producers, has spudded in. Location is in SE NE Section 2-37-4w.

In the Alberta end of the Red Coulee Field, D. A. McDonald and associates of Calgary are reported resuming work on Ko-Top Oils' No. 1, SE, Section 2-1-17w4, which has been standing at 1,650 feet for a couple of years. The test at this depth has a small gas flow, and will be continued to the oil horizon. It is west of the Vanalta producers.

British Columbia Test

In the Kelowna district, British Columbia, Okanagan Oil & Gas Co.'s No. 1, E half Section 2-26-Osoyoos Survey, is drilling below 2,500 feet with a hole full of water. The drill is working in marine limestone formation with an increasing lime content, and below 2,465 feet increasing quantities of paraffin-base oil have come up with the water.

British Columbia Regulations

With a view to encouraging private enterprise, the British Columbia provincial government has lifted all coal, oil and natural gas reserves on crown lands in the province. In addition to important coal reserves, there will as a result be thrown open to leasing and development the Peace River district of northern British Columbia, which has been reserved from leasing for some years. This area is partly traversed by the Rocky Mountain foothill belt and structural conditions are considered favorable for oil and gas. Following a reported oil strike near Quensel, a portion of the Craiboo district in southern British Columbia was also withdrawn from leasing a couple of years ago.

Under the new Petroleum and Natural Gas Act any person may lease and develop oil and gas rights reserved or belonging to the government, subject to prescribed conditions for staking and application. Rentals for the first year are fixed at 50 cents an acre, with lease fee of $5. Any lease may consist of a rectangular block up to 640 acres, half of which shall be reserved for the government and not available for lease to any other party. A survey shall be made by an approved surveyor within six months of granting of the lease. Leases, which do not include oil shale rights, will be subject to royalty of not less than 5 and not more than 10 per cent, on production. Drilling equipment must be installed within one year, and drilling started within 15 months. Expenditure of $10 per acre in drilling operations is accepted as satisfactory development, and provision is made for credit of a portion of any surplus amount on rentals for a subsequent year. On crown lands, timber may be cut for camp buildings and drilling purposes; and surface rights may be leased at a rental of $1 per acre per year. Provision is made for the grouping of adjoining leases for the purpose of joint development and rental credits. Leases may be cancelled for nonfulfillment of rental obligations and cancelled leases may be put up at auction; and the reserve half of an original lease may also be auctioned by the government. Provision is made whereby the government may take over any lease subject to compensation not in any case to exceed the estimated profit from continued private development. Provision is also made for the possible testing of the reserve half of any lease by the government.

CENTRAL WEST FIELDS

(Continued from Preceding Page)

big wells mentioned but over many parts of the State.

In Washington Township, Gibson County, the Big Four Oil & Gas Co. is drilling No. 6 Catherine Sloan farm, SW, Section 18; No. 1 Mary R. Richardson farm, NE, Section 10, and No. 1 on the Nora Hope farm, NE, same section, and getting ready to start No. 2 Robert Huey, SE, Section 18, same township.

Amsler & Gilmore drilled in No. 2 on the Alva C. Smith, SE, Section 4, Harrison Township, Daviess County, which is reported good for 1,000,000 feet of gas from 629-41 feet. Harry Hanson and others are drilling on the John S. Williams, SE, Section 5, same township.

Wyman and Brown are drilling on the William Bell, Jr., NE, Section 23, Turman Township, Sullivan County.

In Perry County, in the extreme southern part of Indiana, Conyers and Bugg's second test on the Alvin Franchville, NW Section 30, Clark Township, is reported with an initial of 75 bbls. W. S. M. Hughes is reported to have a light producer around 5 bbls. in No. 1 H. Cassidy, west of the Bristow Pool, also in Clark Township, same county. Morehead & Black failed to find any pay sand in the Jackson formation on the James A. Cassidy, Section 16, Leapold Township, same county.

In Knox County, O. A. Thayer's test on the Anna Sprout, Location 290, Busseron Township, showed a production of 12 bbls. at 820 feet. Knox Engineering Corp. is drilling on the Snapp farm, Location 252, same township and county.

Dubois Oil & Gas Co. found a dry hole on the Anton Hoff, SE, Section 7, Madison Township, Dubois County, at a depth of 1,100 feet. The Ohio Oil Co. is drilling on the David Neukam, Jr., farm, SE, Section 25, Harrison Township, same county.

Brooks J. Johnston drilled a dry hole on the C. E. Barnhart, NE, Section 25, Jackson Township, Harrison County. Wyandotte Oil & Gas Co. is drilling No. 2 John L. Cunningham, Section 7, Taylor Township, same county.

Fountain Oil & Gas Co. drilled a dry hole on the Gantz, SE, Section 28, Troy Township, Fountain County, and Coats-Smith Oil Co. is drilling on the Snider-Mason, SW, Section 2, Cain Township, same county.

American Industrial Gas Corp. found a dry hole on the Samuel W. Hull farm, Section 21, Otter Creek Township, Ripley County, which drilled into the St. Peter formation. Same company also drilled to the St. Peter on the Harrison Lafuge, NW, Section 30, Harrison Township, Union County. Same company drilled a dry hole in the St. Peter sandstone on the Johnnie Jinks, SE, Section 7, Laurel Township, Franklin County.

Dr. Charles C. Taliaferro, Jr., is drilling on the Cyrus L. Lane, in the NE cor., Section 22, Prairie Creek Township, Vigo County.

ILLINOIS

No completions were reported from any part of Illinois and only a couple of new drilling wells were announced, both in the Dupo Field of St. Clair County, southeast of East St. Louis. In this county in Section 28, St. Clair Township, Cain & Pollock are drilling on the George Stolberg farm, Section 28, and Hugo and others are drilling on the Theodore Stutz, Section 13, Millstadt Township, same county.

St. Clair County Oil Co. abandoned Nos. 1, 3 and 4 on the Hall-Weihl, NE, Section 28, Sugar Loaf Township, St. Clair County.

The Ohio Oil Co. abandoned old No. 7 well on the Lydia Seed farm, SW, Section 15, Dennison Township, Lawrence County.

KENTUCKY

In Kentucky operators are curtailing overproduction in hopes of better prices. Only a few completions are reported. In the most active area for the past few months in Hart County there was but one completion, Carpenter & Frost's No. 5 Robertson farm, with an initial of 50 bbls.

In Ohio County, Harry L. Ogle and others' second test on the I. T. Westfield farm, in the Friendship Pool, is reported at 27 bbls. initial.

In Daviess County, Harry Russell and others' No. 2 Widow Tanner, east of Whitesville, is reported at 35 bbls. Roy Hogan's No. 1 Jones farm, in the Pleasant Ridge section of the county, is said to show for 12 bbls., and Cox and others' No. 2 Alsip farm, Cane Run Pool, is rated around 40 bbls.

An excellent gas well has been completed by the Lettmer Oil & Gas Co., in No. 1 in the Barboursville district of Knox County, a 2-mile extension to the Himyar gas field of Knox County, the well showing 4,000,000 feet at a depth of 2,100 feet.

Unknown parties drilled in a fair gas well according to reports on the Dr. M. E. Craft farm, in Christian County, the volume not being reported.

SOUTHWEST TEXAS FIELDS

(Continued from Page 91)

miles south is a test drilled in the early days of the Calliham Field and plugged which had a good showing of oil

The Calliham Field, which was never fully developed, is to be worked over, the wells cleaned out and it is understood a deep test will be drilled in that field. the first effort at finding more sands there. Since nearly every field in the coastal plain has been shown to have many sands the deeper drilling in Calliham will be of interest.

Corpus Christi District

Gulf Coast Oil Co.'s No. 1 Perkins & Gasse in the north edge of the Saxet Field, which blew out while running casing at 4,566 feet, cratered after wrecking the derrick and late in the week caved in sufficient to choke itself off. The gas and salt water is believed to have come from 1,650 feet from a sand that has blown out in several other wells in the field. It is possible that the lower sands have not been injured.

Starr County

Eight tests now circle the Heard and Heard discovery well on the Goodrich farm at Rio Grande City. Sioux Oil Co. which now owns the Heard and Heard acreage and well, is starting No. 2 Goodrich, which will drill to the same 1,382-foot sand. Edwin M. Jones of San Antonio is rigging up two locations west of the discovery well with a big rig and two heavy boilers, the outfit being capable of going several times deeper than 1,382 feet. Four of the new tests have the derricks up and Tarver and Nance, after changing to rotary rig, are down below 1,000 feet on the farthest west of the group and the others are all locations but due to begin operations at once.

California Curtailment Outlook Good

Under Present Plan Independents Would Be in Charge of Work With the General Committee Representing Individual Fields

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., May 14.—Strenuous efforts are being made to revive the California curtailment program as the defeat of the Sharkey Oil Conservation measure early this month has caused widespread anxiety over possible developments during the next few months. The hysteria and pessimism of producers following defeat of the Sharkey bill has been overcome, and producers, recognizing the necessity of immediate action, have started a concerted attempt to curtail crude oil production at the earliest possible moment. The resignation of Paul N. Boggs, vice president of the Union Oil Co. of California, as chairman of the Operators General Committee on Statewide Curtailment, is tantamount to an ultimatum to independent producers to either curtail production to economic requirements or face the consequences of a general breakdown in the existing price structure. In effect, major companies, although they are still maintaining curtailment, have adopted a hands-off policy and will make no further attempt to sponsor curtailment.

Umpire Neal Anderson is revamping the original curtailment program and is making a determined effort to revive mutual curtailment in order to alleviate conditions before the situation reaches the critical stage. Curtailment work in California has experienced a general breakdown during the past several months, although several major companies have effected additional curtailment during the period in question. This is especially true in the Ventura Avenue Field, where the Associated, General Petroleum and Shell voluntarily reduced field production from 40,000 bbls. per day to 30,000 bbls. Operators in the San Joaquin Valley reaffirmed their position on curtailment late this week, although several operators informed Umpire Anderson that Los Angeles Basin fields must get into line and stay there or they would resume unrestricted production.

Independents in Charge

Independent producers sponsoring the attempt to revive the state-wide curtailment program are quite sanguine over the outlook, although they recognize that the co-operation of all producers is imperative and that the success of this movement depends upon their attitude. It is proposed to place curtailment work under the direction of a board of 12 members which will be designated as the Producers Central Proration Committee. In other words, representatives will in the future represent one or more fields rather than individual or collective numbers of operators. Another significant development is the fact that this committee will be made up entirely of independent operators. The Producers Central Proration Committee will consist of five members from the San Joaquin Valley and one each from Santa Barbara County, Ventura County, Los Angeles County, Long Beach, Huntington Beach, Playa Del Rey and Santa Fe Springs. There is no radical change in the method of effecting proration under the old and new plan now under consideration except that a general attempt will be made to equalize the production of offset wells as far as possible. The committee has also been considering the advisability of fixing the allowable production of each zone in fields where this is practicable.

Gas Law

One of the most important developments during the past week from a constructive standpoint was the culmination of the suit to enforce the gas conservation law in the Dominguez Field of Los Angeles Basin. Early in the week the court granted a continuance of six days, during which period the judge was to make a personal inspection of conditions existing in the field. As a result of this continuance, the court has obviously not yet made a decision, although the original order which shut in nine wells was continued in effect. In the absence of any judicial decision, it appears quite probable that the Dominguez case has been settled out of court or that the defendants have agreed to an instructed decision. At any rate, operators in the Dominguez Field have again shut in a number of wells which were opened up March 3 because of the insistence of lessors. Daily production of the Dominguez Field has consequently been substantially reduced and if the wells now shut in can be held back this field will not cause the curtailment committee any anxiety.

New Deep Sand

Completion of the Belridge Oil Co.'s No. 64 in the North Belridge Field of Kern County flowing 32,000,000 feet of natural gas per day was of outstanding importance in California during the past week. This new well, located in Section 27-27-20, was brought in flowing under a pressure of 1,300 pounds from a depth of 8,062 feet. The importance which attaches to its completion lies in the fact that it definitely indicates the existence of substantial production in a new deep zone located 2,500 feet below the second productive zone in this field. During the first day's production this well was spraying a light distillate or straw colored oil all over the landscape. It was turned into the traps Friday and during the succeeding 24 hours produced a little better than 3,000 bbls. of 48.1 gravity oil.

Quite a difference of opinion exists among geologists and petroleum engineers as to the status of this well. It has been generally believed that the Belridge Oil Co. has penetrated the Kreyenhagen in this well but paleontologists, after a careful check of cores taken from the hole, are of the opinion that this well is now producing from the upper half of the Temblor, which correlates with the Elliott high pressure gas zone in the North Dome at Kettleman Hills. This theory is supported by the fact that both the new deep zone at Belridge and the upper high pressure Elliott gas zone in the North Dome at Kettleman Hills are comparable from a production standpoint as both are producing unusually high gravity oil accompanied by a tremendous amount of natural gas. On the assumption that the new 64 zone in the north Belridge Field of Kern County correlates with the Elliott producing zone in the North Dome of Kettleman Hills, upper production in the former field must be coming from the Transitional zone in the shale. This theory is amply supported and undoubtedly accounts for the unconformity of subsurface conditions and the lack of uniformity from a production standpoint.

May Stimulate Deeper Drilling

The significance of this discovery in the North Belridge Field may be far-reaching as it indicates the possibility that deeper drilling in other San Joaquin Valley fields may ultimately be successful. In the Lost Hills Field of Kern County the General Petroleum suspended drilling operations in its No. 1 Berry at 8,260 feet because of the inability to determine the thickness of the brown shale existing in this field. The discovery of the Belridge Oil Co. is both favorable and unfavorable as regards this well because it indicates the probability that Temblor production can be anticipated if the hole can be drilled deep enough, and yet on the other hand, it tends to indicate that the General Petroleum might have to go down to 10,000 feet or better in order to reach the top of the Temblor. The depth at which the Belridge Oil Co. completed its No. 64 will probably stimulate deep drilling in San Joaquin Valley fields, although this exploration work can only be done by major companies or other operators sufficiently provided with ample funds.

Although the Belridge Oil Co.'s new deep zone discovery has only just been completed, operators interested in the North Belridge Field have already started discussing the necessity of preventing any general deepening campaign. It is the consensus of opinion that it would be especially advantageous to retard deep zone development for a period of at least one year. If the Belridge Oil Co. shuts in its new completion in the deep zone, this will automatically eliminate any concern over deep drilling in this field as other operators are anxious to effect stabilization. If for any reason the Belridge Oil Co. should permit this well to remain on production, other operators will be obliged to initiate offset work.

The discovery of this new deeper zone may ultimately prove to be of more importance than is evident at present. This is due to the fact that the areal extent of each succeeding zone increases with depth. The first, or upper zone in the North Belridge Field, was extremely limited in area, whereas the second Transitional zone was substantially larger. If the new deep third zone follows this uniformity, it will be a distinct advantage to the Continental, Union and other companies holding acreage out around the edge of the field. The Belridge Oil Co., incidentally, holds the greater part of the productive acreage in the North Belridge Field in fee and will consequently be benefited more than any other single operator. This company has four wells producing in the North Belridge Field at present in addition to one drilling well and a new rig in course of construction. There has been very little drilling started in the Belridge Field during the past several months, but the discovery of this new deep zone may stimulate additional development unless, as has already been stated, operators can work out a gentlemen's agreement or some other plan whereby a drilling moratorium can be effected. It is not expected that the North Belridge Field will cause any disturbance in the proposed production equilibrium due to the extreme depth at which production is secured, together with the probability that the State Department of Natural Resources will step in with a gas waste suit as soon as this condition arises.

Playa Del Rey

The Union Oil Co. finished an excellent well in the Playa Del Rey Field of Los Angeles Basin during the past week when No. 4 Del Rey was brought in flowing 1,350 bbls. of clean 23.4 gravity oil per day from 5,984 feet. This new well, which was bottomed in the Schist, is a direct offset to No. 1 Vidor, finished several months ago. It came in barefoot and was consequently completed flowing through open drill pipe. The completion of this new well substantially increases the value of the Union's holdings lying between this outpost and the older section of the field. Its completion likewise enhances the value of the Vidor lease which, by the way, was secured when the nearest production was more than a mile away. The Union and Ohio each have about 200 acres of undeveloped oil land which is being held back until conditions improve. There are two or three redrilling jobs under way in the Playa Del Rey Field at present, but, with this exception, there is very little drilling of any kind.

Two wells were finished in the Dominguez Field during the current week, although one of them has not yet cleared up sufficiently to make an accurate tank gauge. This well was the Union Oil Co.'s No. 29 Callender, finished in the third Callender zone at 5,095 feet. It is at present flowing at the rate of 1,000 bbls. per day, but if the production continues to build up and the cut diminish it will be good for 2,000 bbls. per day or better. This well has just been completed and the emulsion and water may be, due to rotary drilling fluid. The Shell Oil Co. recompleted No. 40 Reyes flowing 1,730

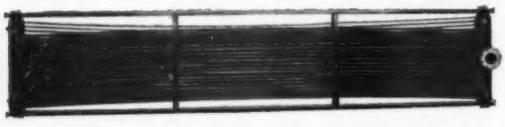
TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Apr. 30, 1932		Apr. 23, 1932			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal—domestic:						
Diesel and gas oil	.....	.....	.....	.....	116,890	892,230
Gasoline	306,749	43,821	187,976	26,854	2,183,348	5,303,664
Kerosene	.....	.....	80,745	11,535	80,745	41,512
Foreign exports:						
Crude oil	88,827	12,690	148,463	21,209	3,010,232	2,351,715
Fuel oil	337,100	48,158	123,675	17,668	3,472,338	5,105,938
Diesel and gas oil	.....	.....	49,763	7,109	761,735	1,250,367
Gasoline	82,628	11,804	90,773	12,968	3,042,750	3,430,811
Kerosene	.....	.....	.....	.....	724,071	559,229
Lubricants	.....	.....	.....	.....	.....	18,978
Naphtha distillates	.....	.....	.....	.....	41,175	.....
Coastwise—domestic:						
Crude oil	177,090	25,299	361,969	51,710	4,865,109	7,320,745
Fuel oil	192,557	27,508	328,085	46,869	4,928,038	4,747,041
Diesel and gas oil	21,565	3,081	10,032	1,433	519,362	566,667
Gasoline	322,891	46,127	431,111	61,587	4,991,093	4,238,003
Kerosene	9,736	1,391	913	130	57,007	132,303
Naphtha distillates	.....	.....	.....	.....	.....	4,952

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal—domestic:						
Diesel and gas oil	.....	.....	.....	.....	70,995	.....
Gasoline	79,748	11,393	.....	.....	293,455	267,499
Lubricants	.....	.....	.....	.....	15,824	14,015
Foreign exports:						
Crude oil	.....	.....	87,022	12,432	578,306	6,010
Fuel oil	.....	.....	.....	.....	521,659	396,924
Diesel and gas oil	35,401	5,057	6,650	950	352,107	232,288
Gasoline	245,648	35,093	.....	.....	1,410,916	1,099,108
Kerosene	25,589	3,656	.....	.....	340,042	285,863
Lubricants	.....	.....	.....	.....	20,884	.....
Coastwise—domestic:						
Fuel oil	69,114	9,873	32,177	4,597	864,052	1,453,588
Diesel and gas oil	8,793	1,256	1,584	226	187,104	88,756
Gasoline	88,560	12,651	129,657	18,522	1,152,787	991,239
Kerosene	6,309	901	.....	.....	36,278	100,382

Heat Exchangers
for every gasoline plant need



The G-R Bentube Section, which sheds hard-water scale without requiring hand-cleaning.

The G-R Tubeflo Section KC, which maintains rated capacity with dirty fluids.

Typical G-R Shell-and-Tube Type Heat Exchanger with floating head.

THROUGH years of study of gasoline plant and refinery heat exchange problems we have developed a line of units to meet every gasoline plant requirement.

The list of G-R Heat Transfer Apparatus includes the only scale-shedding atmospheric condenser or cooler; the only exchanger which will maintain its capacity without frequent cleaning, and the only high pressure condenser made without castings or staybolts.

These and many other types of G-R apparatus for heat transfer services have won general recognition for high transfer rates, reliable operation and economical maintenance. The long experience of The Griscom-Russell Co. in making heat transfer apparatus is at your service and definite selections will be made without obligation, if you will send us information on the problems in which you are interested.

G-R Heat Transfer Apparatus for natural gasoline plants (similar units are available for refinery service.)

- Reflux Condensers
- Final Condensers
- Gasoline Coolers
- Absorption Oil Exchangers and Coolers
- Preheaters
- Reheaters
- Reboilers

Complete information on these units or other G-R apparatus will be sent on request.

THE GRISCOM-RUSSELL CO.
285 Madison Ave., New York
Representatives in principal oil centers

Griscom-Russell
Heat Transfer Apparatus

bbls. of clean 32.1 gravity oil per day from the third Callender zone at 5,217 feet. This well was originally finished in December, 1931, flowing 920 bbls. per day from 4,956 feet. The production at that time was far below normal expectations and the company accordingly redrilled and deepened it to its present depth. The Republic Petroleum has encountered the first Callender zone in its No. 1 Childs at Dominguez but will not attempt to produce from either this or the second Callender zone due to their depleted condition and the unfavorable location of this well with respect to structure. It is believed that the flush condition of the third Callender zone will permit the development of commercial production. Engineers familiar with the Dominguez Field do not give this well much chance, although it is not at all improbable that it may produce commercially for a short time before edgewater encroachment reduces its productive life. The Childs lease of the Republic Petroleum is recognized as being on the edge of the structure and it is just a question as to how long the well may produce if completed before edgewater encroachment prevents commercial production.

Kern River

The Chanslor-Canfield Midway Oil Co. successfully completed its No. 41 out on the west front of the Kern River Field and this new project is pumping 220 bbls. of 15.1 gravity oil per day from 2,203 feet. In the Round Mountain Field of Kern County Archie S. Mayes finished his No. 2 pumping 160 bbls. of clean 16.4 gravity oil per day from 1,559 feet. This new well was finished with an 8⅝-inch water string landed at 1,548 feet, having picked up the top of the Vedder zone at 1,550 feet. The California Western Oil Co. spudded in another well in the Round Mountain Field during the past week and is making a grade for another new well to be started in Section 7-28-29. There were no developments of special importance in the Fruitvale Field during the past seven-day period, although a check of development work under way indicates the probable starting of two new wells and the completion of one driller during the coming week. The Sea Hawk Petroleum Co. has let a contract for the construction of a new loading rack to be erected in conjunction with the construction of a railroad spur to be laid just west of the Fairhaven area of the Fruitvale Field. The spur and loading rack will permit the loading of 15 cars simultaneously.

Several new wells are scheduled to be started in the Midway-Sunset Field of Kern County during the next 30 days. Some of these projects will be located in proven territory, while others will be located just around the edge of the field. The Union Oil Co. opened up its No. 1 Williams in the Midway section of the field a few weeks ago due to production and development activities on neighboring acreage. This well, finished about two years ago and subsequently shut in, was returned to production doing 250 bbls. per day. Based on its potential determined by a five-day flow test after being opened up, it is good for approximately 400 bbls. per day. Goldman and Simms have started rig construction for a second well in Section 22-32-23 and the Cypress Petroleum is making preparations to build a new rig on adjoining acreage in the same section. The Republic Petroleum is rotating ahead in its No. 35-A in Section 7-32-23 at 2,301 feet and this project should be tanking oil within the next 30 days. The Standard is drilling ahead on a potential producer in Section 33-31-24 at 4,591 feet.

Ventura Avenue

The Associated Oil Co. successfully recompleted No. 109 Lloyd in the Ventura Avenue Field after redrilling and deep-

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Standard, No. 1 Santa Rosa Island, Santa Barbara Co.	.....	....	grading
Barnsdall, No. 1 Los Alamos, Santa Barbara Co.	31- 8-33	4,100	br. sh. drilling
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	9,082	br. sh. drilling
Wilson, N. S., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	4,840	br. sh. drilling
Equity Oil Co., No. 1 Coal Oil Point, Santa Barbara Co.	24- 4-29	2,103	reaming
Bolsa Chica, No. 2 Coal Oil Point, Santa Barbara Co.	25- 4-29	....	location
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-10-27	rig	rigged up
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
The Texas Company, No. 1 Carpinteria, Santa Barbara Co.	33- 4-25	280	sd. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
Woodrow Pet., No. 1 Miguelito, Ventura Co.	4- 3-24	1,793	sd. sh. drilling
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	2,484	suspended
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-25	5,812	fish for D.P.
American Oil Co., No. 1 Conejo, Ventura Co.	33- 2-20	1,590	cleaning out
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	6,619	fish for D.P.
General Pet., No. 1 Buttonwillow, Kern Co.	6-28-23	3,094	suspended
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 13 Buttonwillow, Kern Co.	9-28-23	2,670	15,000,000ft.gas
Milham Expl. Co., No. 14 Buttonwillow, Kern Co.	7-28-23	mtl.	building rig
Purman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	3,963	suspended
Welport Oil Co., No. 8 McKittrick, Kern Co.	26-29-21	1,298	recemented
General Pet., No. 1 Belridge, Kern Co.	30-28-21	8,260	suspended
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	suspended
Rio Grande, No. 1 Shale Hills, Kern Co.	7-27-19	rig	rigging up
Rio Cal Pet., No. 1 Shale Hills, Kern Co.	2-27-18	2,355	suspended
Fullerton Oil Co., No. 6 Semitropic, Kern Co.	14-27-23	711	sd. drilling
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	17-26-18	3,226	suspended
Gauthier, C. B., No. 1 Devils Den, Kern Co.	24-25-19	rig	rigging up
Fowler, F., No. 1 Blackwell Corner, Kern Co.	15-26-19	929	hd. sd. drilling
Regina Oil Corp., No. 1 Mojave, Kern Co.	26-10-14	2,790	cleaning out
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	4,000	suspended
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	1,030	redrilling
Barnsdall Oil Co., No. 1 Tejon, Kern Co.	15-11-20	6,160	sd. sh. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Descanso Oil Co., No. 1 Tejon, Kern Co.	31-11-19	2,749	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Kingsburg Expl. Co., No. 1 Kingsburg, Fresno Co.	30-16-23	2,660	sd. sh. drilling
Kent & McDonald, No. 1 Carrizo Plains, San Luis Obispo	3-32-22	2,693	redrilling
Emerich Oil Co., No. 1 Carrizo Plains, San Luis Obispo	22-32-22	891	hd. sh. drilling
Trav-El Oil Co., No. 1 Carrizo Plains, San Luis Obispo Co.	7-32-22	2,450	cleaning out
Indian Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	26-31-12	3,352	suspended
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	5-31-13	3,070	suspended
Paso Robles Oil Co., No. 1 Edna, San Luis Obispo Co.	27-27-11	4,191	suspended
Emerich Oil Co., No. 1 Atascadero, San Luis Obispo Co.	13-28-12	2,401	may abandon
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	1-29-12	1,650	suspended
Pacific Inland, well No. 1, Monterey Co.	19-23-15	2,340	suspended
Brown, W. F., No. 1 Parkfield, Monterey Co.	15-23-14	1,051	suspended
Guess, E. B., No. 1 Corcoran, Kings Co.	7-21-21	6,197	suspended
Woodward, Glen, No. 1 Dudley Ridge, Kings Co.	32-22-20	380	sd. sh. drilling
Scott Bros. Drlg. Co., No. 1 Dudley Ridge, Kings Co.	18-22-19	380	suspended
Lacal Natural Gas Co., No. 1 Dudley Ridge, Kings Co.	32-22-20	118	sd. drilling
Kettleman Natural Gas Co., No. 1 Dudley Ridge, Kings Co.	18-22-19	1,100	suspended
Irma Investment Co., No. 2 Dudley Ridge, Kings Co.	7-23-20	1,224	suspended
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	1,125	gas—shut in
Eagle Oil Co., No. 2 Dudley Ridge, Kings Co.	15-23-20	911	gr. sd. drilling
Tulare Basin Gas Co., No. 2 Dudley Ridge, Kings Co.	2-23-19	mtl.	building rig
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	5,894	cleaning out
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Magee & Stone, No. 1 Alpaugh, Kings Co.	34-24-22	3,660	suspended
Guess, E. B., No. 3 Dudley Ridge, Kings Co.	12-23-22	1,798	suspended
Ingraham, R. H., No. 1 Porterville, Tulare Co.	24-22-27	....	location
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,200	suspended
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Gravity Expl. Co., No. 1 Alpaugh, Tulare Co.	11-24-23	2,207	cleaning out
Ellis & Sanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,920	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,694	suspended
Napa Oil Co., No. 1 Griffith, Napa Co.	7- 8- 3	2,848	cleaning out
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	1,040	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,750	suspended
Hilderbrandt, R., No. 1 Crows Landing, Stanislaus Co.	36- 6- 7	1,130	suspended
Rushing Oil Co., No. 1 Waterford, Stanislaus Co.	20- 3-13	2,594	sd. sh. drilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo Co.	23-12- 3	2,516	cemented
Easton & Monell, No. 1 Colma, San Mateo Co.	25- 3- 6	3,124	sd. sh. drilling

ening it to 7,375 feet. This rejuvenated producer was returned to production flowing 1,115 bbls. of 28.6 gravity oil and 1,295,000 feet of natural gas per day but has subsequently been beaned back to 610 bbls. of oil and 762,000 feet of natural gas per day. The company has been obliged to use extreme care in No. 83 Lloyd, a deep test, as this project at 9,180 feet almost got beyond control on two occasions. The rotary drilling mud has been badly gas cut and the crew has been busy replacing it and circulating to kill the increasing amount of gas. This well is drilling ahead in the 57 zone which the Associated discovered late last year. The original completion in this horizon showed substantial production despite the fact that only a limited penetration was taken before the preliminary production test was concluded. No. 83 Lloyd was subsequently selected as an ideal well to determine the thickness and productivity of the new deep virgin zone. The Associated is working on four other holes in the Ventura Avenue Field at the present time, while the General Petroleum and Shell are drilling one each. The General Petroleum recompleted No. 4 Tomson in the Rincon Field of Ventura County a few days ago but this project cannot be considered a commercial producer by any stretch of the imagination as it is pumping 85 bbls of 19.1 gravity oil cutting 52 per cent from 4,041 feet.

Buttonwillow

The Milham Exploration Co. has successfully completed No. 14-9 in the Buttonwillow Gas Field of Kern County and this new producer, bottomed at 2,670 feet and finished with a 6⅝-inch liner carrying 169 feet of perforated, was finished flowing 15,000,000 feet of dry natural gas per day. The company experienced a little difficulty in the completion of this well as it failed to produce on an initial production test with the bottom of the hole at 2,670 feet and a 9-inch water string landed and cemented at 2,525 feet. Upon perforating the water string at 2,330-70 feet and 2,413-83 feet and the landing of an additional 181 feet of 6⅝-inch liner, it came in of its own accord with the results just mentioned. The Milham's next work in the Buttonwillow Field will be the drilling of No. 41-7, the rig for which is now in course of construction. No. 14-9 in Section 9-28-23 and No. 41-7 in Section 7-28-23 are located on acreage held by the Southern Pacific Land Co. The General Petroleum and the Wilshire have suspended drilling operations on their respective tests in the Buttonwillow Field, but the Graham & Loftus Oil Corp. is still working on No. 1 Carmel, which has been held up with mechanical trouble for the past several weeks.

There were no completions listed in the Kettleman Hills Field during the past week but several projects now in the drilling stage are scheduled for early completion. The Kettleman North Dome Association should account for several of these potential producers as it has three projects drilling ahead below the 8,000-foot level and two more rotating ahead below 7,600 feet. The Powell-Stockton Investment Co.'s No. 1 Courtner in Section 32-22-19 has shown a considerable improvement in the outlook during the past two or three weeks and this well may bear watching despite the fact that it is located rather well out on the structure in the eastern part of the field. The North Kettleman Oil & Gas Co. has made exceptionally good footage in its western outpost in Section 24-21-16, and while it will be another six months or so before it reaches the interesting stage, correlation work in the meantime will undoubtedly be watched with interest. The Standard Oil Co. successfully killed its discovery well in the Middle Dome of Kettleman Hills and this project will be deepened and tested by stages. No. 6-29-V was flowing 1,276 bbls. of clean 56.1 gravity oil per day from 7,825 feet at the time it was taken off production preparatory to the resumption of work. The Petroleum Securities' No. 1 Burbank, an offset to the Standard's No. 6-29-V, is still held up with a hole full of junk at 9,332 feet. The crew is milling on junk at 5,178 feet, but has not made much progress during the past few weeks. The plan to unify production and development activities in the Middle Dome of Kettleman Hills has not yet progressed beyond the tentative stage, although considerable work has been done in working out some of the necessary details. This field will ultimately be brought under unit development, although this plan may be held in abeyance pending completion of the Standard's exploration work now under way.

WILLIAM J. BREENE DEAD

William J. Breene, of Reno, Pa., died suddenly at his summer cottage at President, near Oil City, Pa., on Tuesday May 10, at the age of 72 years. Mr. Breene was a member of the board of directors of the First National Bank of Oil City; the Pontiac Oil Co., operating in the Pennsylvania fields, and the Winona Oil Co., one of the oldest operators in the Osage Nation in Oklahoma. He was widely and favorably known in the eastern and Mid-Continent oil centers.

Mr. Breene was born in Freeport, Armstrong County, Pennsylvania, on April 20, 1860. He was admitted to the Venango County bar in Pennsylvania, at the age of 23 and practiced until 1917, when he retired to give his attention to his other activities. He operated in the Pennsylvania and Ohio fields and then turned his attention to the Mid-Continent, where, as an individual and as stockholder in the Winona Oil Co., he took a part in the development of the Osage Nation as an oil territory.

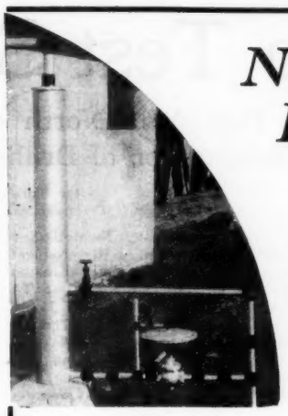
Mr. Breene is survived by his widow, two sons and one daughter. E. C. Breene of Oil City and Harry Breene of Tulsa are brothers of the dead man.

J. D. CALLERY DIES

PITTSBURGH, Pa., May 16.—James Dawson Callery, president of Diamond National Bank, Pittsburgh, chairman of Pittsburgh Railways Co., and director of Philadelphia Co. and Equitable Gas Co., is dead at 75.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	7,414	suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Co-operative Dev. Co., No. 1 Del Rey, Los Angeles Co.	26- 2-15	611	sd. sh. drilling
Lawndale Pioneers, Inc., No. 1 Peck, Los Angeles Co.	20- 3-14	6,378	suspended
Barcus, W. L., No. 1 Watson, Los Angeles Co.	28- 4-13	rig	rigged up
Baldwin Oil Co., No. 9 Inglewood, Los Angeles Co.	7- 2-14	3,670	sd. sh. drilling
Baldwin Hills Synd., No. 1 Inglewood, Los Angeles Co.	17- 2-14	4,090	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	2,700	hd. sd. drilling
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	1,593	cleaning out
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,902	suspended
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	5,060	suspended
Wardell & Menichini, No. 1 Montebello, Los Angeles Co.	7- 2-11	304	suspended
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	1,004	fishing
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,571	gr. sd. drilling
Marble, Willard, No. 1 Chatsworth, Los Angeles Co.	6- 2-16	1,395	reaming
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	7,259	suspended
Nuoil Co., No. 1 Newport, Orange Co.	29- 6-10	1,970	cleaning out
Orangethorpe Pet., No. 1 Brea, Orange Co.	32- 3-10	983	sd. sh. drilling
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Spindletop Oil Co., No. 1 Salton Sea, Riverside Co.	25- 7-10	3,590	suspended
Duncan, N. I., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	sidetracking
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	664	sd. sh. drilling
Woods, D. H., No. 1 Salton Sea, Imperial Co.	7-11-16	760	sd. sh. drilling
Borderland Oil Co., No. 2 Encinitas, San Diego Co.	29-16- 4	2,677	suspended
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	1,248	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18- 1	1,701	hd. sd. drilling
Oklahoma Oil Corp., No. 1 Palms, San Diego Co.	25-11- 8	1,888	redrilling
Shannon, G. H., No. 1 Kearney, San Diego Co.	14-15- 3	446	suspended



Neat, Precise, Businesslike, Unfailing

NOW as in the early days of the industry, Fulton Regulators are the surest aids to satisfactory control in the transmission of gas. There is a C-F Regulator for every purpose, exactly suited to the requirements. Correct choice is important. May we suggest the right C-F regulator for the conditions you encounter?

C-F

The Chaplin-Fulton Mfg. Company

28-40 Penn Avenue Pittsburgh, Pa.

GOOD THREADS *are worthy of a good joint filler*

SMOOTH-ON NO. 1

THREADED or flanged joints made with Smooth-On No. 1 can be taken apart at will, but in service *must* stay tight. The metal filling once spread perfectly over the thread surfaces and set, cannot dry, shrivel or blow out under vibration, high pressure and wide temperature range, because it then acts in unison with the pipe metal itself—and has the same expansion coefficient.

If you want perfect joint performance, read the Smooth-On Handbook, and give Smooth-On No. 1 a trial.

Get Smooth-On No. 1 in 1 or 5-lb. can or 25-lb. keg from your supply house or if necessary, direct from us.

SMOOTH-ON MFG. CO., Dept. 66,
570 Communipaw Ave., Jersey City, N. J.
Please send the Smooth-On Handbook.

Name_____

Address_____

5-19-32

Do it with **SMOOTH-ON**

Ohio Oil to Test State of Washington

Location Half Mile North of Aberdeen in Gray's Harbor County. Resumption of Drilling in Lea County, New Mexico

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., May 16.—Out of 119 operations in Colorado, Wyoming, Montana and New Mexico which were beyond the spudding stage on May 1, 46 were active and 73 were shut down. These figures do not include locations and a number of rigs which have been standing for some time. Most of the wells shut down have been idle for several months and some of them for more than a year. The Ohio Oil Co. is entering Washington and will drill a deep test near Aberdeen.

In New Mexico, the allowable outlet for the Hobbs Pool remained unchanged for the first half of May. The Texas Company is preparing to stake a location in the Lea Pool, where no drilling has taken place for a year. Eddy County has one of its best producers in the Grayburg Oil Co.'s No. 3 Burch, which gauged 520 bbls. in 24 hours. Location for a deep test in Valencia County was made by the Western Natural Resources Co.

In Montana, the Ohio Oil Co.'s Golden Dome test in Carbon County found sulphur water in the Lakota and will continue to the Sundance. One of the best producers on the Dry Creek structure is showing a little bottom water. Glacier County will have two or three new locations shortly. The Flat Coulee structure in Liberty County is to have another test.

In Wyoming, the Argo Oil Co.'s properties in Salt Creek will be operated by the Midwest Refining Co. Construction on the new Salt Creek-Casper power line has commenced. The Ohio Oil Co. made a location in the Big Muddy and two wells are being completed in Osage.

The Ohio Oil Co. made a location on the northeastern side of the Greasewood Field in Colorado and two or three new locations in that district are expected next week.

The Utah Southern Oil Co.'s test to below the salt beds in eastern Utah is resuming.

NEW MEXICO

Lea County

The allowable outlet for the Hobbs Pool for the first half of May was placed at 30,500 bbls. daily, the same as for the last half of April. The potential of the field as of May 1 was increased 1,745 bbls. to a total of 1,160,679 bbls. daily. Pipe line runs from the field in April aggregated 917,890 bbls., bringing the total since proration began up to 22,168,719 bbls.

Drilling operations in the Hobbs Pool are confined to three wells, one each on the northern, northwestern and southern sides. Midwest Refining Co.'s No. 8 Terry, C NW SW Section 10-19-28, is expected to be the next completion. It is bottomed at 4,038 feet and is ready to run 8⅝-inch pipe. Amerada Petroleum Corp.'s No. 1 Hardin, SW cor. Section 18-18-38, is bottomed at a total depth of 2,964 feet and is milling on casing at 2,568 feet, at which depth the 10¾-inch collapsed. Texas Pacific Coal & Oil Co.'s No. 3-G State, C SE Section 24-18-37, spudded on May 3 and is drilling in the red beds at 187 feet.

The Lea Pool, in which no drilling has taken place for more than a year, is showing some signs of activity. The Texas Company is preparing to stake a location in Section 2-21-33. The company has acreage in the northeastern part of the section upon which there are two producers in Lot 8. The sections in that district are 1½ miles long. No wells have been drilled to the north of the producers and the pool has not been defined in that direction. A mile to the northwest The Texas Company drilled in its No. 1 Lynch as a producer in 1929. The section upon which the Lynch well is located was in litigation for a long time, but title was cleared recently by a court decision in favor of the company.

Eddy County

Eddy County came in for considerable attention the past week when Grayburg Oil Co.'s No. 3 Burch, C SW NW Section 19-17-30, came in as one of the best producers ever completed in that county. It is bottomed in lime at 3,101 feet at which depth it gauged 520 bbls. in 24 hours. It topped the pay at 2,923 feet and had the last important increase in oil at 3,080-89 feet. It is east of the Artesia Field and between that pool and the Jackson Pool and midway between the last named and a group of gas wells in Sections 20 and 21-17-29. Three wells have been drilled in the immediate vicinity, No. 3 Burch being an offset on the north to the same company's No. 2 Burch, C NW SW Section 19-17-30, which was completed in the fall of 1929 at a total depth of 3,204 feet for 45 bbls. of 36 gravity oil the first 24 hours. It also offsets on the east the same company's No. 2 Keely, C SE NE Section 24-17-29, completed in 1929 at 3,082 feet with an initial production of 350 bbls. of oil and 4,000,000 feet of gas. No. 3 Burch made 1,250,000 feet of gas with the oil in the 24-hour test.

Leonard & Levers' No. 7 State-Levers, C SW SE Section 20-17-29, 4 miles west of No. 3 Burch and in the vicinity of a group of gas wells, spudded May 5 and is drilling at 210 feet in sandy red beds.

W. A. Scott's No. 1 Kaiser, NW SE Section 7-18-27, southwest of the Artesia Pool and near the Compton producers on the Brainard tract, is drilling at 260 feet in red shale.

Avalon Oil Co.'s No. 1 State, NE cor. SE Section 26-20-27, southwest of the Getty Pool, is drilling at 890 feet in gray sandy shale.

De Baca County

Matador Oil Co.'s No. 1 Woods, NE SW SW Section 6-4n-20, Salada Creek, is drilling at 4,662 feet in sandy lime, and Landowners Oil Co.'s No. 1 McAdoo, SW cor. NE Section 16-1s-27, Buffalo Creek, is drilling at 4,740 feet in red shale.

Chaves County

Warman Oil Trust's No. 1 Evans, N half Section 15-14s-25, Blackdom district, is drilling at 1,163 feet in lime and had a show of oil at 1,159 feet. The operator claims 200 feet of oil in a 5-inch hole. This well is south of the same firm's No. 1 Seibert, NE Section 27-13-24, which last year was plugged back from 2,686 feet to 2,050 feet and temporarily abandoned without plugging.

Curry County

G. W. Trout and others' No. 1 Hart, NW SW NW Section 24-2n-31, is shut down for orders at 958 feet. This well is being drilled for water.

San Miguel County

Cabra Springs Oil & Gas Co. is reported to have been formed with a capital of 5,000,000 shares of no par value to take over the operation of the Hershfield Oil Development Co., including its No. 1 Thompson, C NE Section 21-12n-22, Pinon Mesa, which has been shut down at 2,250 feet for several weeks.

Bernalillo County

Norrins Realty Co.'s No. 1 Pajarito grant, NW cor. NE Section 22-9n-1e, is bottomed at 1,275 feet and fishing for 12½-inch pipe.

Guadalupe County

New Mexico Producing & Refining Co., Ltd.'s No. 1 McMullen, SW cor. Section 24-5n-16, Mesa Leon district, is shut down for orders at 4,507 feet. The contractor is reported to have been called to California for a consultation.

Valencia County

Western Natural Resources Corp., Inc., of Los Angeles, is moving in materials for a test on the San Clemente grant in the C NW NE Section 8-6n-1e, 12 miles southwest of Los Lunas. E. B. Guess has the contract for a 5,000-foot hole to be drilled with rotary. The California Securities Commission is reported to have authorized the company to use $50,000 it has raised in drilling the test, which will have the Pennsylvanian for its objective. The maps show a structure in that district and one test to have been drilled to 2,900 feet with a show of oil. The location is 6 miles west of the several wells drilled by Thomas B. Harlan, the last of which was dry and abandoned at 4,018 feet. No. 5 Harlan ranch was drilled by the Guess Drilling Co. under contract.

San Juan County

Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor. Section 20-28-10, Kutz Canon district, is bottomed at 3,767 feet and cleaning out cave. No new hole has been made since resuming.

MONTANA

Carbon County

Ohio Oil Co.'s No. 1 Kuchinski, NW SE NE Section 15-7s-22, a deep test on the Golden Dome, east of the Dry Creek Field, proved to be a disappointment in the Lakota formation and will be carried to test the Sundance. It is bottomed at 6,115 feet, in the top of the Lakota, which showed sulphur water. The Dakota was practically dry except for a small show of gas.

Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW Section 7-7s-22, Dry Creek, completed last February in the Dakota, topped at 5,601 feet and drilled to 5,710 feet, and made 1,800 bbls. initial with 12,000,000 feet of gas, is showing a little bottom water. It is believed the hole was drilled a little too deep and the water is being plugged off. Same company's No. 1 McMinn, NW SW SW Section 7-7s-22, half a mile south, is drilling out plug after cementing casing at 4,234 feet, on top of the second Frontier. In that formation it showed considerable gas with sprays of oil.

Ohio Oil Co.'s No. 2 Montana Industrial, C NW SE Section 11-7s-21, Dry Creek, is bottomed at 5,488 feet and cemented 6⅝-inch on top of the Dakota at 5,404 feet. It had a good show of oil and gas. Same company's No. 1 Caldwell, CEL NE SE Section 12-7s-21, is drilling at 3,410 feet, and its No. 2 Robinson, C SE SE Section 3-7s-21, is drilling at 4,291 feet.

Midland Oil Syndicate's No. 1 Burger, SW cor. NW Section 24-6s-23, East Bridger, is drilling below 300 feet.

Gallatin County

Montana Gas & Petroleum Corp.'s No. 1 Adams, SE cor. Section 35-2n-1e, Three Forks district, is drilling at 1,650 feet.

Cascade County

Buscher & Cassidy's No. 1 Johnson, NE cor. SE Section 19-22-3e, Benton Lake, is shut down at 1,380 feet, and Charles Merz, and others' No. 1 Sheffelt, SE NW Section 4-21-4e, Black Horse Lake, is drilling at 1,110 feet in lime.

Glacier County

It is expected that The Texas Company will announce two or three locations in the Cut Bank area within 10 days. The Montana Power Co. is scheduled to drill several gas wells, but locations have not yet been released.

Milk River Petroleum Co.'s No. 1 Blackfeet, SW NE NE Section 28-36n-12w, Milk River district, recently taken over from the Fulton Petroleum Co., is building steel derrick, installing a 200-horsepower Diesel engine and rotary equipment. It was drilled to 2,956 feet with a 16-inch hole at the bottom. The new company, headed by Charles H. Frye, a Seattle meat packer, took over 22,000 acres and the Fulton company received a substantial block of stock for its interest. The well to date is reported to have cost $130,000.

Liberty County

Judge C. N. Pray, in the federal district court at Great Falls, has approved a petition of John H. Hamilton, receiver for the Sunburst Oil & Refining Co., for permission to close a contract with the J. H. Adams interests to drill on a 4,000-acre block in the Flat Coulee district. The Sunburst company drilled a well on Section 10-37-5e to 2,680 feet and had a good show of gas, but lost the hole at that depth.

Broadwater County

Capitol Oil & Gas Co.'s No. 1, SE NW Section 7-8n-1e, Winston district, is drilling at 2,050 feet.

Teton County

California Co.'s No. 1 Sullivan, NW NE NW Section 34-27-7w, Bynum district, is drilling out cement at 2,636 feet. Total depth is 2,840 feet.

WYOMING

Natrona County

The Stearns-Rogers Manufacturing Co., of Denver, which has the contract for the construction of a 39-mile high-tension power line from the Midwest Refining Co.'s big power plant in the Salt Creek Field to the Standard Oil Co. of Indiana refineries at Casper, has begun work on this project. The plant now has a capacity in excess of requirements in the Salt Creek Field and surplus power will be used for prime movers in the refineries.

The Argo Oil Co. has made an operating agreement with the Midwest Refining Co., effective May 1, by which the Argo properties in Salt Creek will be operated by the Midwest. The arrangement was made under an agreement that is expected to effect a considerable saving for the Argo company which heretofore has mained a regular field force. The Midwest will take over the services of some of the Argo employes and that company will use others in its operations in other fields. The deal applies only to the Salt Creek properties.

Mutual Oil Syndicate's No. 2 Midway Dome, C SW SE Section 14-35-79, is drilling at 4,853 feet with the second Wall Creek expected at 5,150 to 5,200 feet. The first Wall Creek, which was topped at 4,735 feet, was about 100 feet thick and had a show of gas.

Converse County

Ohio Oil Co. has staked a location in the Big Muddy Field for its No. 1 Kinney, SE SW SE Section 4-33-76, an offset on the west to Continental Oil Co.'s No. 30 Glenrock Sheep, SW SE SE Section 4-33-76. The last named, which is moving in material, is a north offset to Ohio's No. 5 Jones, the discovery well in the Lakota at 4,364 feet. Both of the new wells will be drilled with rotaries with the Lakota as the objective.

Weston County

Chadron-Osage Oil Co.'s No. 16, CWL NW SW Section 14-46-64, in the west end of the Osage Field where some good producers have been completed, found the sand at 2,044-56 feet and is filling up with oil. There is not enough gas to flow it and it is too early to make any estimates as to what it will do.

Jones-Rose Syndicate's No. 2, CWL SW NE Section 21-46-63, in the shallow district on the east side, missed the Muddy at 450 feet and will plug back

What does Refinery Insulation cost?

IF the heat insulation on refinery stills, piping and apparatus has not been checked recently, the chances are that it is costing money every day the plant operates. Is it designed for the temperatures to which it is subjected? Is the thickness sufficient to insure maximum savings? A lack of definite information on these points can be very expensive.

But it is easy to get the facts. Our engineering department will gladly check the heat insulation now in service in any refinery and advise what further savings, if any, are possible. This service is rendered without cost—all we require is a list of the apparatus insulated, stating internal temperatures and the kind and thickness of the present insulation. Write for full information.

THE PHILIP CAREY COMPANY
Lockland, Cincinnati, Ohio

Carey Oil Industry Specialties

Heat Insulations
All types of asbestos, magnesia and alumina base insulations in the form of pipe coverings, blocks, brick and cement.

Fireproof Roofing & Siding
Careystone Corrugated sheets made of asbestos and cement. Ideal for all types of buildings subjected to fumes and fire hazards.

Pipe Line Felts
Asbestos or rag felt pipe line felts waterproofed with specified bitumens. All widths and weights for hand or machine wrapping on the job or mill wrapping at plant.

BUILT-UP ROOFS
ASPHALT PRODUCTS
ELASTITE EXPANSION JOINT
WATERPROOFINGS
ROOF PAINTS

Carey PRODUCTS

HEAT INSULATIONS
ASBESTOS MATERIALS
CORRUGATED ASBESTOS SIDING
ASFALTSLATE SHINGLES
ROLL ROOFINGS

653

to a show in the shale at 190 feet which bailed 3 bbls. per day.

Federal Oil Co.'s No. 2, CEL NE SE Section 15-46-64, is drilling at 1,200 feet after setting 8¼-inch at 1,100 feet.

Riggs Oil Co.'s No. 1 Fowler, SE cor. NE Section 16-46-64, which came in last September and marked a western extension of the pool, is still producing 60 bbls. per day from sand at 3,188 feet. The company is preparing to start another well on this lease.

Julius Peters and others' No. 1 Witzell, SE cor. NW Section 30-46-64, Fiddler Creek, is drilling in sandy shells of the Muddy formation at 3,550 feet.

Niobrara County

Continental Oil Co.'s No. 4 Rohlf, NW SW SW Section 32-36-65, Lance Creek, an old producer, is preparing to drill deeper from 2,960 feet to the gas sand. It will not go to the Sundance.

Carbon County

Sinclair-Prairie Oil & Gas Co.'s No. 1, SE SE SW Section 29-27-89, Bunker Hill, is drilling at 6,215 feet in hard shale.

COLORADO

Weld-Morgan Counties

A test of the territory northeast of the producing wells in the Greasewood Pool was assured this week when Ohio Oil Co. released a location for its No. 1 Butters, C SW SW Section 7-6n-60, 1¼ miles northeast of the Continental Oil Co.'s No. 1 Briggs and across the line in Morgan County. The Briggs well is the most northerly of the several wells drilled in Greasewood and the largest producer. Greasewood has been defined by the drill only in one well half a mile west of No. 1 Briggs and two wells southwest of the discovery. The Ohio test will be drilled with a rotary.

The announcement of the Ohio company's location is expected to be followed within a few days by two and possibly three new locations. The east half of Section 13-6n-61, which offsets on the east the Continental's Briggs lease, will have at least one well. This is known as the Henry Niles tract. The lease is held by the Platte Valley Petroleum Co. Niles sued several weeks ago to have the lease cancelled, but this litigation and all difficulties in the way of drilling, including the Reiter-Foster Oil Co.'s first call on the oil, have been cleared up and the way is now open for the drilling. The Ohio company's location on the Butters tract will call for an offset on the Niles tract and an offset to the Continental's No. 1 Briggs also will have to be drilled.

The Tulsa-Fort Morgan Petroleum Corp.'s No. 1 Anthes, C NE NE Section 24-8n-59, New Raymer district, is drilling at 510 feet in an 18-inch hole. No water has been encountered to this depth. A water sand was expected at around 250 feet, but when it was missed it was decided to carry the 15½-inch pipe to below another water sand expected at 600 feet. Ohio Oil Co. is doing some core drilling about 5 miles southwest of No. 1 Anthes and is reported to have picked up three water sands under 500 feet.

Retter Oil Co.'s No. 1 Cronin, NW cor. SW Section 24-1n-66, Brighton-Lupton district, is shut down at 420 feet. Same company's No. 2 Cronin, 320 feet south and a little west of No. 1, is drilling at 300 feet. Its No. 1 Smith, C E half, Section 14-1n-66, the deep test, is shut down at 1,280 feet.

Larimer County

Mayer Oil Co.'s No. 1 Reed, SW cor. NW Section 28-4n-69, Berthoud district, is resuming at 3,800 feet and recovering lost bit.

Lincoln County

Eastern Colorado Oil Co.'s No. 1 State, SE cor. NW Section 36-14s-57, near Hugo, about which there has been some confusion, is bottomed at 3,425 feet. The old tools have been drilled by and it is now trying to spud them into the hole and get them out. The rig is being rebuilt. This is one of the most interesting wildcats drilling in eastern Colorado. It has had several good shows of oil and gas and almost no water and is believed to be less than 100 feet off the Dakota. It has been held up by one difficulty after another, but appears to be in a good way to get straightened out. M. K. Mouser, an experienced operator, president of the company, is in personal charge of the work.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE Section 7-4s-66, near Aurora, is making progress slowly at 6,015 feet with a 3-inch bit. At this depth it is in a very hard sand showing a little saturation, but no gas. Shows of oil and gas just above this horizon were cemented off.

Rio Blanco County

California Co.'s No. 1 California-Raven, NW SE Section 30-2n-102,

(Continued on Next Page)

PATENTS *Write for Free Book*
MUNN & CO.
Associated since 1846 with the Scientific American
514 Scientific American Bldg., *Washington, D. C.*
1351 Scientific American Building, *New York City*
24 West 40th Street,
1303 Tower Building, *Chicago, Ill.*
658 Hobart Building, *San Francisco, Calif.*
511 Van Nuys Bldg., *Los Angeles, Calif.*

Washington County, Ohio, Is Busiest

Important Transfer Reported. Five Oil Producers, Five Gas Wells and Three Dry Holes Completed in Eastern Fields

By Staff Correspondent

PITTSBURGH, Pa., May 16.—Completions were equally divided during the past week in the three districts of the eastern fields with five oil producers and five gas wells. There were also three dry holes reported. Southeast Ohio reported one fair producer from a deep sand, and West Virginia had two fair gas completions. Except where aided by a local excitement, drilling remains retarded as the slight curtailment still remains in effect in crude production, and some of the larger gas companies are seeking relief from their present gas contracts. The greatest interest still is in southeast Washington County, Ohio, where two distant wells failed to find production in the third Warren sand, and two wells closer in are drilling within about a week or 10 days of completion.

SOUTHEAST OHIO

Five producers were completed in Southeast Ohio during the week, one making a good start, and in addition there were three dry holes. In Guernsey County, the Ohio Producing & Refining Co. completed a second test on the E. C. and Verna A. Quillan farm in Section 10, Wheeling Township, the center of many fair wells. It was drilled in the Niagara lime at a depth of 3,441 feet and produced 50 bbls. the first day natural. The well will not be shot at the present time due to the low existing market.

In Meigs County, James Simpson completed a test on the Rena E. Karr farm in the NE Section 11, Sutton Township. It is a Cow sand producer from a depth of 658 feet and started off as a 1-bbl. pumper. In Medina County, E. R. Edson & Son Co. failed to get a producer in their No. 37 on the George W. Packard No. 1 lease in Section 13, Chatham Township. It was drilled to 420 feet and in the Berea grit, which proved an extended fault.

In Morgan County, about a mile west of Morganville, in Section 34, Deerfield Township, R. C. Whitener completed No. 11 on the Cornelia J. Starrett farm, and abandoned it as a dry hole, the first Cow Run sand proving dry. This formation was found at 195 feet. In Salem Township, Washington County, and in the northwest quarter of Section 164 on the Peter Pfaff farm, the First National Bank of Lowell, Ohio, completed No. 18 in the Buell Run sand at 466 feet. It will make a small pumper, having produced 1 bbl. the first day natural.

Washington County

About 6 miles from the William Harris test on the Crago farm which is still producing about 35 bbls. a day natural from the third Warren sand at 2,915-50 feet, and in SW Section 34, Newport Township, Swingle Brothers drilled their test on the Michael Edwards farm to 3,045 feet. It failed as a producer in the third Warren sand and was shot in the second Warren at 2,806-22 feet. From this depth it produced a quarter of a barrel natural the first day, and, after shot, 1 bbl. the first day. The owners have decided to shoot this test in the Fifth sand, which proved reasonably thick on the log, in the hope of sufficient deep sand production to complete. The shot will be placed this week.

The other interesting deep test is about 3 miles from the Crago, and is in SW Section 24, Grandview Township. It is a disappointment. Thomas McVey and others drilled to 3,754 feet on the Cordray sisters farm, all of the deeper sands proving dry. The various structures below the Squaw sand as far down as the Cinnamon showed nothing in commercial quantities. The test will be plugged below the Squaw sand and the well operated from the Squaw sand which is showing for about a 1-bbl. pumper.

Tests Drilling in Washington County

The offset well to the Crago being drilled by E. J. Mildren on the William Barber farm has reached 2,600 feet. The third Warren sand is looked for at about 3,100 feet. The Buckley & McCall Drilling Co. is drilling on the Porter Pryor farm in NE Section 16, Independence Township, and after reaching 2,800 feet lost the tools and about 200 feet of wire cable, and is at present fishing.

In Independence Township, the Penn Ohio Gas Co., a Benedum-Trees interest, is making good time on the D. R. McKnight farm, NE Section 10, the hole standing at 2,700 feet, about 200 feet above the sand. In SE Section 16 of the same township, these operators have reached 1,450 feet on the John Semmler farm after recovering the bit lost at 920 feet.

Other locations have been made and more are being made in this section, but at present development of these is waiting on the result of tests now drilling.

Important Transfer

A transfer of some magnitude in Washington County was announced when Edward J. Mildren sold to Benedum & Trees, well known operators, the gas and oil in structures below the Berea grit formation, in his leases covering about 500 acres in Independence Township and 200 acres in Grandview Township, but is permitted to retain an interest in the deeper sands.

This transfer is said to include the deep test now drilling on the William Barber farm as an offset to the discovery well and which is now within 500 feet of the third Warren sand. In disposing of the lower structures, Mr. Mildren announced he will continue to produce from the present wells, about 48 Injun sand producers, which have been developed over a period of years. Mr. Mildren owns the Barber farm in fee. The consideration in this transfer was not announced, but it is believed to have been the largest yet consummated in this possible new pool.

WEST VIRGINIA

West Virginia added one oil producer and several gas wells in the operations covering the week. Several of the gas wells were fair in size. The oil producer was the result of the Buffalo Oil & Gas Co. drilling its No. 1 on the R. L. Knopf farm in Spencer district, Roane County, deeper and in the Salt sand. It is showing for about a 6-bbl. well.

Gas Wells

Boone County presented one fair gas well during the week. In Washington district the Hill Gas Co. completed its test on the J. A. Covert farm in the Maxon sand at a depth of 1,349 feet. It is rated at in excess of 1,000,000 feet a day. In Cabell County, the Madison Gas Co. completed a test on the Era Taylor farm in Guyandotte district. It was completed in the Berea sand at 3,187 feet and will make a fair gas well, the initial gauge showing about 750,000 feet a day.

In Gilmer County, on Trace Fork Creek, in DeKalb district, the Ellis Oil & Gas Co. completed a test on the Ellis heirs farm in the Injun sand and has a light gas well.

In Roane County the Reedy Oil & Gas Co. completed its No. 5 on the L. M. Riddle farm in Curtis district at 1,740 feet and in the Salt sand. It is a very fair well showing for over 1,000,000 feet a day. In the same district, George Smith and others drilled their test on the C. A. Kendall farm slightly deeper in the Injun sand from 2,227 feet to 2,256 feet with a subsequent showing of nearly 300,000 feet a day.

A late report from Union district, Tyler County, adds another producer in West Virginia. There, Howard Hall and others completed No. 3 on the Johnson heirs farm in the Cow Run sand. The well is making about 8 bbls. a day.

Drilling in West Virginia

Cabell County has three wells drilling. In Guyandotte district, C. C. Wolfe is drilling on the J. F. Weatherington farm and has reached 1,220 feet. In the same district, the Midway City Gas Co. is down 770 feet on the C. C. Morrow farm. In Grant district, the United Fuel Gas Co. is drilling on the J. Frank Grass farm and has reached 1,330 feet.

In Wayne County the Penn Natural Gas Co. is drilling a second test on the Guyan Valley Bank property in Union district. The test is down 650 feet. In the same district, the Southern West Virginia Gas Co. has a test drilling on the A. W. Preston farm, which is down 618 feet, and at present shut down for repairs. In Stonewall district, the Wayne United Gas Co. has at present suspended operations, being shut down at 1,720 feet on the A. W. Wilson heirs farm. This company has several locations on the Hoard Baldwin farm.

In Ritchie County, W. R. Hayes and others are down 1,670 feet on the Wilson Brothers lease in Murphy district. In the same district, C. B. Lewis and others remain shut down in a second test on the Delia Lyons farm and at 1,450 feet. H. H. Allen is drilling his old test on the J. P. Allen farm deeper and is down 1,950 feet.

In Tyler County, A. S. McCullough & Son have spudded in and started drilling a third well on the Dan McCullough farm in Meade district. In the same district, the Ohio Oil & Gas Co. has shut down its test on the A. D. Arnett farm after reaching 2,116 feet. In Pleasants district, William Tice is past the 1,000-foot level on the W. F. McKnight farm in Lafayette district.

In Logan County the West Virginia Gas Co. is drilling No. 36 on the Dingess Run Coal Co. tract in Logan district. It has reached 1,550 feet.

In Putnam County W. H. Kirtley is drilling a second test on the J. H. Cottle farm. The tools are down 1,600 feet. This test is in Scoot district. Gilmer, Wetzel, Marshall and Marion Counties remain very inactive with no drilling reported.

SOUTHWEST PENNSYLVANIA

There were no completions in Southwest Pennsylvania. Production is being maintained at the allowable 90 per cent of November, 1931. In North Fayette Township, Allegheny County, Schaffer & Co. have spudded in and started drilling No. 3 on the Henry Schaffer farm. In Amwell Township, Washington County, Willard Iams & Co. are down 600 feet in a test on the Willard Iams farm.

Rangely Dome, has recovered pipe and is making new hole at 5,064 feet.

Adams County

Hills Dome Lease Development's No. 1 Hills, SE cor. Section 27-3s-64, near Watkins, is shut down at 4,025 feet.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE Section 21-23-21, Salt Valley Dome, Grand County, has resumed at 5,220 feet and is drilling in an 8¼-inch hole. This operation was started to test the pre-Pennsylvanian strata which underlie the salt beds of the Great Salt Basin in eastern Utah. There has existed from the beginning of this operation the unknown factor of the thickness of the salt beds to be penetrated. This well entered the salt at 900 feet and has been substantially in rock salt for 4,300 feet. How much thicker the bed is remains to be determined. The several breaks in the salt were of minor importance, except one consisting of shale sand and conglomerate at 3,350 to 3,500 feet. This break contained a sand at 3,432-36 feet which was full of normal paraffin base crude of a very desirable quality. The oil rose 2,000 feet in the hole and 300 bbls. were bailed out and the productivity was found to be 15 to 20 bbls. per day. This flow was then cased off to drill deeper.

WASHINGTON

The Ohio Oil Co. is preparing to operate in the State of Washington and has cellar dug and derrick up for its No. 1-A Robinson, Section 5-17n-9w, on the Aberdeen-Hoquiam structure in Gray's Harbor County. The location is half a mile north of the town of Aberdeen and close to the Pacific Ocean. A rotary rig is being moved in from California and considerable equipment is being sent in from its Crystal Dome operation in Idaho which recently was abandoned. The company has acquired a block of 4,000 acres on a 60-40 drilling agreement with the Gray-Tac Oil Co. of Tacoma, the first well being free to the Gray-Tac company. The last named concern drilled a well on the structure but lost the hole at 1,400 feet. Dorsey Hager, Sam Adair and Albert Hale originally reported on the structure and William T. Nightingale did the geological work for the Ohio company. The surface is middle Miocene and the axis runs in an east-west direction. A closure of 1,500 feet with 25 to 30-degree dips is reported.

Mordello L. Vincent and others' No. 1 Olympic, NW SW Section 9-28-14, Quillayute Prairie district, Clallam County, is bottomed at 2,600 feet in sand and shale with a show of oil and gas. The 6⅝-inch was cemented at 2,440 feet.

Leslie Petroleum Co.'s No. 1 Sims, Section 12-26-14, Hoh River district, Jefferson County, is drilling at 1,625 feet in shale and carrying 8¼-inch. It has been standing several weeks with 10-inch frozen at 1,600 feet. When operations were resumed it was reported to have 100 feet of oil standing on top of the water.

Florence Oil & Gas Co.'s No. 1 Christensen, near Stanwood, in Snohomish County, is reported drilling at 1,150 feet and carrying the 4¾-inch.

Miocene Petroleum Co.'s No. 1, NE NW Section 17-12-19, Union Gap district, Yakima County, is reported to have a show of gas through water at 2,600 feet. The pressure is about 150 pounds. Sincoe Oil Co.'s No. 1, NW NW Section 24-11-17, is shut down at 2,760 feet.

Wenatchee Valley Oil & Gas Co.'s No. 1 Watkling, Section 14-23-19, Monitor district, northeast of Wenatchee, in Chelan County, has spudded in a test for gas. The company has 2,600 acres under lease and the Kirby-Withers Drilling Co. has the contract.

Acme Oil & Gas Co.'s No. 1, Section 13-39-1, Ferndale Ridge district ,in Whatcom County, is shut down at 1,250 feet for 8¼-inch, and Ives Oil & Gas Co.'s No. 1, Section 21-30-4, Nooksack district, is drilling at 930 feet.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 86)

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor., Sec. 3-2-35w.. S.D. 3,925 ft.

RENO COUNTY

Martin et al's No. 1 Yadu, C NW NW, Sec. 15-24-5w.... S.D. 50 ft.
Jarvis & Wright's No. 1 Rainbow, NW SE. Sec. 33-22-7w . Drlg. 3,558 ft.

RICE COUNTY

Slick et al's No. 1 Arth, SE NE Sec. 27-18-10w..... Location.
J. Liggett et al's No. 1 Thodel, C NW NW, Sec. 11-21-7w. S.D. 50 ft.

RUSSELL COUNTY

J. Brennan's No. 1 Waly, CNL E½ NW, Sec. 29-13-11w.. Rig.

RUSH COUNTY

Skelton et al's No. 1 Brock-Hartman, SW SE NE, Sec. 4-18-16w ..... S.D. 50 ft.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W½ NE NW, Sec. 20-13-4w ..... T.D. 3,100 ft.; U.R. 6-in. csg. from 3,021 ft.

SEDGWICK COUNTY

Tulsa Oil Co.'s No. 1 Levert, C SE SW, Sec. 8-28-2w.... Drlg. 900 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW, Sec. 27-7-26w..... Fishing 4,505 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE, Sec. 10-33-39w.. S.D. 5,521 ft.

SUMNER COUNTY

Trees Oil Co.'s No. 1 Tompkins, SW, Sec. 26-33-1..... Location.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW, Sec. 6-34-2 ..... T.D. 3,120 ft.; U.R. 6-in. csg.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 88)

Rio Bravo Oil Co.'s No. 3 Fisher, Wm. Bloodgood Sur., 300 ft. E and 33 ft. S of NW cor. of tract ..... Washing over stuck D.S. 4,106 ft.
Sinclair Oil & Gas Co.'s No. 12 Wilburn, Wm. Hodges Sur., 150 ft. W of No. 10 and 50 ft. N of S line ... Drlg. shale and lime 3,797 ft.
Sun Oil Co.'s No. 2 Higgins, Wm. Hodges Sur., 50 ft. from E line of tr. and direct offset McAlbert Oil Co.'s No. 2-B Higgins ..... Derrick.
Sun Oil Co.'s No. 7 Chambers (W.O.), Wm. Bloodgood Sur. ..... Sand showing oil 5,151 ft; cmtd. 7-in. csg. 5,100 ft.
Sun Oil Co.'s No. 14 J. Wilburn, Henry Hodges Sur., 150 ft. W of No. 12 and 50 ft. from N line ..... Drlg. rock 2,708 ft.
The Texas Company's No. 6 Wilburn (D.D.), Henry Griffith League ..... Fishing core bbl. 5,129 ft.
Texas Gulf Producing Co.'s No. 7-A Barber, Henry Griffith League, 712 ft. from W line and 225 ft. from N line of tract ..... Drlg. salt 5,668 ft.; top of salt 2,920 ft.
Texas Gulf Prod. Co.'s No. 3 Ilfrey, Henry Griffith League, 260 ft. W of No. 2 in center of tract ..... Drlg. hard rock 1,326 ft.
Texas Gulf Prod. Co.'s No. 10-B Kirby, Henry Griffith League, 450 ft. E of No. 9-B and 250 ft. S of N line ..... Drlg. gumbo 210 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 15 Mayes, E. Wallis Sur., 450 ft. NE of No. 11 and 450 ft. NW of No. 14 ..... Coring shale 2,305 ft.

BLUE RIDGE—FORT BEND COUNTY

Coronado Oil Co.'s No. 3 Blakely, 200 ft. E of No. 2 in Lot 9, Blk. D, E. Drew Sur. ..... Drlg. sand and shale 4,500 ft.

RABBS RIDGE—FORT BEND COUNTY

Gulf Prod. Co. and Humble Oil & Ref. Co.'s No. 3 Booth-Meyers, John Rabb Sur., 1,500 ft. E of No. 2.. Derrick.

PAGE FENCE IN 4 METALS

CORRECT STYLE
CORRECT METAL
BOTH ARE IMPORTANT IN FENCING

● In selecting a fence these two points are most important—appearance and endurance.

Appearance depends largely on background surroundings. You're sure to find just what you're looking for in the wide range of Page Fence types and sizes.

Endurance depends *solely* on the metal selected. Page provides for every atmospheric condition and its resulting problem of corrosion with four different metals:

1 Page "Alcoa" Aluminum
2 Page Armco Ingot Iron
3 Page Copper-Bearing Steel
4 Page Highland Wrought Iron

● There is an expect PAGE FENCE organization in each one of our 82 Service Plants over the country. Write for the name of our representative nearest you. He will be happy to recommend impartially the particular metal that will give you best service. Write also for a copy of "Border Patrol"—a beautifully illustrated booklet containing a wealth of fence facts—and the story of Page specialized fence service. No obligation. Address Page Fence Association, 520 North Michigan Avenue, Dept. 05, Chicago, Illinois.

PAGE FENCE

America's first wire fence since 1883

Page Fence of Armco Ingot Iron fabric is exclusive with Page

Page Fence is a Product of The Page Steel & Wire Co., an Associate Company of American Chain Co., Inc.

nation-wide service through 82 service plants

CHAIN LINK OR ORNAMENTAL WROUGHT IRON

Ross-Meehan Foundries

Manufacturers—

RIVER CLAMPS a Specialty

Williamson Multispeed Winch for Oil Fields
Williamson Drum Units
Electric Steel Castings, Electrically Annealed
"Certified" Malleable Iron Castings
"Meehanite Metal" Castings
Gray Iron Castings
Special Analyses Castings for—
Oil Producers and Refiners

Chattanooga, Tennessee, U.S.A.

PIPE LINE MEN

Every issue of The Oil and Gas Journal contains all available pipe line news. Why not fill out the coupon below and subscribe to the greatest oil publication?

The Oil and Gas Journal

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma.

Enter my subscription for one year. I hereby will pay $6.00.

Name_____

Occupation_____ Company_____

Address_____ City_____ State_____

5-19-32

Gulf Prod. Co. and Humble Oil & Ref. Co.'s No. 2 Booth, Samuel Kennedy Sur., 475 ft. from S line and 600 ft. E of No. 1 ..... Set 5 joints 4½-in. screen 5,096 ft. and cmtd. into 7-in. csg. to 4,858 ft; (csg. seat at 4,972 ft.); set 4,858 ft. of 2½-in. tu ing; comp. flowing 30 bbls. per hr. P.L. oil, 625 lbs. pressure, ¾-in. choke.

Gulf Prod. Co. and Humble O. & R. Co.'s No. 1-B Booth, Samuel Kennedy Sur., 445 ft. N of S line due N of No. 1 T. R. Booth ..... Spudded.

Humble O. & R. Co. and Gulf Prod. Co.'s No. 2 Davis, Robt. Peebles Sur., 2,483 ft. E, 150 ft. S of NW cor. of 1,000-ac. tr. ..... Location.

Humble Oil & Ref. Co. and Gulf Prod. Co.'s No. 2 Lockwood, John Rabb Sur., 1,000 ft. due E of No. 2 ..... D.S. stuck 4,575 ft.

Humble Oil & Ref. Co. and Gulf Prod. Co.'s No. 2-B Lockwood & Sharp, John Rabb Sur., 816 ft. W of No. 1-B ..... Sand showing oil 5,186 ft; cmtd. 9⅝-in. csg.

Humble O. & R. Co. and Gulf Prod. Co.'s No. 5-A Lockwood & Sharp, J. Rabb Sur., 1,000 ft. W, 300 ft. N of SE cor. of Tr. 2 (469.3 ac.) ..... Location.

Humble O. & R. Co. and Gulf Prod. Co.'s No. 3-B Lockwood & Sharp, J. Rabb Sur., 1,000 ft. from E line and 300 ft. from N line of Tr. 1 (938.75 ac.). Location.

The Texas Co.'s No. 1 Wolters (M. H. Gubbels), Samuel Kennedy Sur., 742 ft. from W line, 100 ft. from S line of 100-ac. tract ..... Drlg. clay and sand 42 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 27 Cade, N. Fitzsimmons Sur., 600 ft. N of No. 21 in line with Nos. 22 and 23 ..... Set 2 joints of 5-in. screen 5,349 ft., with 70 ft. of blank and 2½-in. tubing; comp. flowing 1,400 bbls. P.L. oil, ½-in. choke.

Yount Lee Oil Co.'s No. 28 Cade, N. Fitzsimmons Sur., 600 ft. S, 150 ft. E from No. 26 ..... Drlg. hard sand 3,015 ft.

Yount Lee Oil Co.'s No. 29 Cade, N. Fitzsimmons Sur., 300 ft. E of No. 27 and 240 ft. N of No. 16 ..... Rig.

Yount Lee Oil Co.'s No. 1 Broussard & Orme, 300 ft. E of N cor. of N. Fitzsimmons Sur., in Martin Dunman Sur. ..... Drlg. shale 6,205 ft.

Yount Lee Oil Co.'s No. 2 Broussard & Orme, Martin Duman Sur., 300 ft. SE of No. 1 ..... Location.

Yount Lee Oil Co.'s No. 11 Smith, Martin Dunman Sur., 130 ft. E of No. 3 and 440 ft. N of No. 5 ..... Location.

Yount Lee Oil Co.'s No. 2 Nellie League, Martin Dunman Sur., 230 ft. N of No. 1 and 300 ft. E ..... Location.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 135-A Cotton ..... Sand 529-49 ft.; comp. pumping 11 bbls. net oil.

Rio Bravo Oil Co.'s No. 136-A Cotton ..... Drlg. sand and boulders 463 ft.

HUMBLE—HARRIS COUNTY

Cullen & West's No. 4 Burt, J. B. Stevenson Sur., 50 ft. NW of No. 3 in line with No. 2 ..... Drlg. shale 4,583 ft.

J. D. Clay's No. 1 Bender, Robert Dunman Sur., 200 ft. from W line and 100 ft. from S line of 100-acre tract ..... Sand and lime 1,165 ft.

Rio Bravo Oil Co.'s No. 1 fee, 200 ft. from N line, 50 ft. from W line, Blk. 4, Bender South Addn., W. B. Adams Sur. (W.O.) ..... Rig up to deepen.

Rio Bravo Oil Co.'s No. 7 fee (W.O.), 216 ft. W line, 50 ft. S line, 22-ac. tract, Bender South Addn., Adams Sur. ..... Comp. pumping 96 bbls. net oil, 50% wtr, 4,178 ft.

Sun Oil Co.'s No. 52 River, Robt. Dunman Sur. ..... Comp. pumping 40 bbls. net oil 1,477 ft.

Sun Oil Co.'s No. 53 River, Robt. Dunman Sur., 1,100 ft. from S line tract ..... Drlg. shale 1,302 ft.

The Texas Company's No. 24 W.&P. fee, J. B. Stevenson Sur., 50 ft. from W line and 50 ft. from S line... Set 66 ft. 7 inches of 4¾-in. screen 1,444 ft.; comp. flowing 150 bbls. net oil, 8% b.s. and wtr.; 19 gravity.

The Texas Co.'s No. 25 Wheeler & Dickens, 200 ft. N, 50 ft. E of SW cor., Lot 24, J. B. Stevenson Sur. ... Spudded.

E. M. Wilson's No. 9 W.&P.-Texas fee, 40 ft. out of NW cor., Blk. 25, J. B. Stevenson Sur. ..... Drlg. 255 ft.

PIERCE JUNCTION—HARRIS COUNTY

Abercrombie & Harrison's No. 2 Ritter (D.D.), Jas. Hamilton Sur. No. 51 ..... Sand showing oil 4,519-42 ft.; cmtd. 6⅝-in. csg. 4,508 ft.

Anderson & Plummer's No. 7 Whitehead, Jas. Hamilton Sur. No. 51, 248 ft. S of No. 4 and 304 ft. from E line ..... Drlg. salt 3,100 ft.

Rio Bravo Oil Co.'s No. 7-A Settegast (D.D.), Jos. Kopman Sur. No. 44, 1,400 ft. NW along NE line from SE cor. "A" lease and 100 ft. SW at right angles... Sand 4,242-85 ft.; set screen.

Rio Bravo Oil Co.'s No. 24-A Settegast, J. Kopman Sur. No. 44, 1,900 ft. S and 200 ft. W of NE cor. of "A" lease ..... Set 2 joints of 4¾-in. screen 4,516 ft.

Rio Bravo Oil Co.'s No. 25-A Settegast, J. Kopman Sur. No. 44 (location check to come) ..... Derrick.

MYKAWA—HARRIS COUNTY

F. R. Flannigan et al's No. 2 Minnetex, 125 ft. from W line and 100 ft. from S line, Lot 251, Wm. J. Lovett Sur. ..... Drlg. shale 3,486 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Co.'s No. 30 Esperson, C. W. Fisher Sur., 471 ft. from W line and 510 ft. N of No. 5 Esperson ..... Drlg. sand and shale 4,400 ft.

Cranfill-Reynolds Co.'s No. 5 Davis (D.D.), Kokernut Sur., 150 ft. from S line, 1,197 ft. from E line of tract ..... Drlg. sand and shale 3,050 ft.

Cranfill-Reynolds Co.'s No. 9 Moore's Bluff, M. Duncan Sur., 500 ft. S of N line of Moore's Bluff tract in line with No. 6 Davis and No. 4 Moore's Bluff ..... Location.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 16 Boyt (location to come) ..... Bldg. derrick.

SOUTH LIBERTY—LIBERTY COUNTY

The Texas Company's No. 2 Pickett (D.D.), M. G. White Sur., 350 ft. W and 62 ft. S from NE cor. of 12.2-acre tract ..... Rig up to deepen 3,536 ft.; waiting drilling crew.

HULL—LIBERTY COUNTY

Hannah Oil Co.'s No. 1 Hannah, Jesse DeVore Sur., 100 ft. W of The Texas Co.'s No. 1 Hannah ..... Derrick.

D. & L. Prod. Co. and Bashara Oil Co.'s No. 1 Pevito, Jesse Devore Sur., 34½ ft. from E line and 30 ft. from N line of 5-acre strip ..... Set screen 4,320 ft; comp. flowing 500 bbls.

Republic Prod. Co.'s No. 61 Dollgar (W.O.) ..... Rig up to deepen.

MARKHAM—MATAGORDA COUNTY

Claude Hamill et al's No. 2 Northern Irrigation Co., I.&G.N. Sur., Blk. 9, Sec. 5, 50 ft. NW of No. 1 ..... Drlg. hard sand 4,112 ft.

Powers Prod. Co. and Hamill & Hamill's No. 2 N. R. Meyers (18-ac. tract), Wm. Hadden Sur., 240 ft. E of No. 1 ..... Sand showing oil 3,662-72 ft.; cmtd. 7-in. csg. 3,261 ft.

The Texas Company's No. 1 Texas Pipe Line Co., Wm. Hadden Sur., Blk. 5, 50 ft. S and 50 ft. W of NE cor. of tract ..... Spudded.

PORT NECHES—ORANGE COUNTY

The Texas Co.'s No. 3 Stark, 350 ft. E, 100 ft. N of SW cor. of Marshall Beauchamp Sur. ..... Bldg. derrick.

The Texas Co.'s No. 2 Kuhn (D.D.), 589 ft. W and 150 ft. S of NE cor. Mary E. Hall Sur. No. 2 ..... Set 15 ft. 4¾-in. screen 4,315 ft; swbd. dry.

ORANGE—ORANGE COUNTY

Sun Oil Co.'s No. 1 Belile (D.D.) ..... Drlg. 4,050 ft.

REFUGIO—REFUGIO COUNTY

R. M. Jones' No. 1-B Mitchell (D.D.), 250 ft. NW of SE line and 250 ft. SW of Mission River ..... No report.

Larco Gas Co.'s No. 5 Strauch, Refugio Town tract, Lot 6, Blk. 2, 100 ft. W of No. 3 ..... S.D. 2,740 ft.

Pearson Properties' No. 2 Ryals (W.O.), 600 ft. from S line and 150 ft. from W line of lease ..... D.S. stuck 6,614 ft.

United Prod. Corp.'s No. 3 W. J. Fox (D.D.), Wm. Hews & L. Brown Sur., 2,099 ft. NE along SE line from SE cor. of lease, thence 1,690 ft. NW at right angles ..... T.D. 6,820 ft; to plug back to 6,200 ft.

United Prod. Corp.'s No. 4 W. J. Fox, 2,600 ft. NE along SE line from SE cor. of Wm. Hews and L. Brown Sur, thence 1,420 ft. NW at right angles ... Coring sandy shale 5,926 ft.

United Prod. Corp.'s No. 5 W. J. Fox, 2,150 ft. NE along SE line from SE cor. of Wm. Hews and L. Brown Sur., and thence 890 ft. NW at right angles ..... Drlg. hard blue shale 5,886 ft.

CLAY CREEK—WASHINGTON COUNTY

John Walker et al's No. 1 Henry Wendt, J. F. Perry Sur., 150 ft. from SW line and 405 ft. from SE line of tract ..... No report.

SOUTH LOUISIANA FIELDS
JENNINGS—ACADIA PARISH

Russell Campbell's No. 3 Syndicate (D.D.), 475 ft. S and 350 ft. W of NE cor. Sec. 41-9s-2w ..... S.D. 2,350 ft.

Heywood & Heywood's No. 2 Jennings fee simple, 50 ft. N of SE cor. and 15 ft. W of E line of Lot 9, Sec. 46-9s-2w ..... Sand showing oil 1,810-25 ft; cmtd. 8-in. csg. 1,651 ft; drld. plug and set 40 ft. screen and tubing; comp. flowing 4 bbls. net oil, 50% wtr.

Kathleen Oil Co.'s No. 1 Syndicate fee (W.O.), Sec. 46-9s-2w ..... Tested S.W. 4,057-68 ft.; S.D.

Reliable Oil Co.'s No. 2 Rawson (D.D.) ..... Drlg. sandy shale 2,140 ft.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Shell Petroleum Corp.'s No. 1 Fontenot, Sec. 7-9s-6w, 450 ft. due E No. 2 Heyd ..... Sand showing oil 6,895-6,907 ft.; cmtd. 7-in. csg.

EDGERLY—CALCASIEU PARISH

C. M. Crotty Oil Co.'s No. 7 Lillard (W.O.) ..... T.D. 2,530 ft.; S.D.

Emerson & Moore's No. 1-B Hunter, Sec. 21-9s-11w, 265 ft. SE of No. 10 ..... Set 30 ft. of 4½-in. screen 4,050 ft.; rig up to pump.

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 3 Martha Moss, 300 ft. W, 150 ft. S, NE cor. NW SE, Sec. 8-10s-9w ..... Drlg. gumbo 2,605 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 751 fee (D.D.), Sec. 29-9s-10w... S.t 23 ft. of 4½-in. screen 4,246 ft.; swbng.

Union Sulphur Co.'s No. 769 fee, 295 ft. S, 918 ft. W of C of Sec. 29-9s-10w ..... Wtr. sand 5,393 ft.

Union Sulphur Co.'s No. 770 fee, 292 ft. S, 1,242 ft. W of center, Sec. 29-9s-10w ..... Location.

Union Sulphur Co.'s No. 771 fee, 431 ft. S, 340 ft. W of center, Sec. 29-9s-10w ..... Drlg. hard lime 3,650 ft.

Union Sulphur Co.'s No. 772 fee, 145 ft. S, 882 ft. W of center, Sec. 29-9s-10w ..... Location.

VINTON—CALCASIEU PARISH

Marrs McLean's No. 13 Gray, 464 ft. E and 460 ft. S of C of Sec. 30-10s-12w ..... Sand showing oil 2,693 ft.; cmtd. 6-in. csg. 2,616 ft.

Vinton Pet. Co.'s No. 5 Matilda Gray (D.D.), 456 ft. W, 362 ft. N, SE cor. SW NE, Sec. 33-10s-12w ..... Rig up to deepen 3,525 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 8 Dorion, 1,250 ft. S and 792 ft. E of NW cor. Sec. 24-12s-10w ..... T.D. 2,872 ft.; plugged back to 2,862 ft.

Calcasieu Oil Co.'s No. 17 Watkins (D.D.), 2,088 ft. E, 162 ft. S, NW cor., Sec. 24-12s-10w ..... Rig up to deepen; 2,712 ft; standing.

Calcasieu Oil Co.'s No. 34 Watkins, 435 ft. E, 430 ft. S, NW cor., Sec. 24-12s-10w ..... Spudded.

Calcasieu Oil Co.'s No. 2 Unsurveyed Inland, 3,825 ft. N, 1,030 ft. E, SW cor., Sec. 39-12s-10w ..... Drlg. lime rock 2,840 ft.

R. E. Sless' No. 2 Vincent (D.D.), 2,395 ft. S, 1,365 ft. W, NE cor., Sec. 30-12s-10w ..... Losing returns 2,956 ft.

Sultex Oil Co.'s No. 1 Dorion, 181 ft. W, 12 ft. N of junction of W line of Sec. 46-12s-10w and S bank of Kelso Bayou in Sec. 36 ..... Spudded.

J. G. Sutton's No. 1-B Irwin, 3,321 ft. N, in line with SW cor. Sec. 39-12s-10w, in Sec. 23 ..... Rig.

J. G. Sutton's No. 2-B Irwin, 2,521 ft. N, in line with SW cor. Sec. 39-12s-10w, in Sec. 23 ..... Rig.

The Texas Co.'s No. 9 State, 2,229 ft. N, 918 ft. E from SE cor. Sec. 13-12s-10w, in 12s-9w ..... Dredging canal.

The Texas Co.'s No. 10 State, 2,375 ft. N, 564 ft. E, SE cor. Sec. 13-12s-10w, in Twp. 12s-9w ..... Location.

Union Sulphur Co.'s No. 1 Gulf land (Pure Oil Co. lease), 1,420 ft. N, 400 ft. W of SE cor. Sec. 11-12s-10w ..... Drlg. sand and shale 6,929 ft.

Yount Lee Oil Co.'s No. 50 State, 600 ft. S, 700 ft. E of NW cor. of Sec. 24-12s-10w ..... Location.

Yount Lee Oil Co.'s No. 51 State, 545 ft. S, 560 ft. E of NW cor. of Sec. 24-12s-10w ..... Lime rock showing oil 2,820 ft.

Yount Lee Oil Co.'s No. 52 State, 495 ft. S, 420 ft. E of NW cor. of Sec. 24-12s-10w ..... Location.

Yount Lee Oil Co.'s No. 53 State, 445 ft. S, 275 ft. E of NW cor. of Sec. 24-12s-10w ..... Location.

Yount Lee Oil Co.'s No. 54 State, 978 ft. S and 435 ft. Wof NE cor. of Sec. 23-12s-10w ..... Location.

Yount Lee Oil Co.'s No. 55 State, 995 ft. S and 585 ft. W of NE cor. of Sec. 23-12s-10w ..... Location.

Yount Lee Oil Co.'s No. 56 State, 1,000 ft. S and 725 ft. W of NE cor. of Sec. 23-12s-10w ..... Location.

STARKS—CALCASIEU PARISH

Gulf Refining Co.'s No. 30 Lutcher-Moore, Sec. 19-9s-12w, 300 ft. S of No. 16 and 300 ft. W of No. 20 .... Drlg. gumbo 542 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 11 Yount Lee, Sec. 12-13s-8w, 800 ft. S 66 deg. 42 min. from No. 9 ..... Location.

PORT BARRE—ST. LANDRY PARISH

W. A. Aggers' No. 1 Cochran, 250 ft. S and 250 ft. E of NW cor. of Fractional Sec. 21-4s-5e ..... Abd. 3,461 ft.

MISCELLANEOUS WILDCATS
TEXAS
AUSTIN COUNTY

C. O. Farrington et al's No. 1 Jackson, Brookshire, S. F Austin Sur. No. 10, 750 ft. NW of Empire Gas & Fuel Co.'s No. 1 Jackson and 250 ft. S of NW line. .. Abd. in cap rock 3,344 ft.

Grant & Baker's No. 1 Chesley, W. C. White Sur., 150 ft. from NW line and 150 ft. from SW line of 26-acre tract (northeast of Raccoon Bend Field) ..... Cmtd. 10-in. csg. 196 ft.; standing.

Mulvey & Conklin's No. 1 Trenchman, James Cummins Hacienda Sur., 1,244 ft. from S line and 274 ft. from W line of 32.25-acre tract ..... Clay 790 ft.; S.D.

O'Hara Oil & Gas Co.'s No. 1 Neilius, J. C. Cumminge Hacienda Sur., 650 ft. N of No. 1 Schroeder in 18-acre tract, north edge Mill Creek ..... Derrick.

Pomacal & Boletka's No. 1 Schebajea, 329 ft. N, 78 deg. E of N cor. B. Dottery Sur., near center of SW line of S. F. Austin 4 League on west fork of Mill Creek.. Shut down 1,740 ft.

Taylor & Mitchell's No. 1 Schiecte, 1,850 ft. from SE line and 3,100 ft. from NE line of John Fitzgibbons Sur. ..... Sandy shale 3,672-78 ft.; to make D.S. test.

BRAZORIA COUNTY

John Deering's No. 1 C. W. Chapman, 294 ft. from S line and 104 ft. from E line of Lot 2, Andrew Robinson Sur. ..... Standing 1,514 ft.
J. R. Ingram's No. 2 Levitt, John Peske Sur., 75 ft. NW of No. 1 ..... S.D. 1,735 ft.
The Texas Co.'s No. 2 Belcher, 1,728 ft. southeasterly and 1,231 ft. southwesterly at right angles out of N cor. tract, Harvey N. Little Sur. ..... Drlg. sand and shale 5,752 ft.

BURLESON COUNTY

Ball & Knob's No. 1 Polansky, M. B. Lawrence Sur., 359 ft. from E line and 469 ft. from N line of 158-ac. tr. ..... Location.
E. M. Gracey et al's No. 1 Bracey, J. Lastly Sur., 880 ft. from E cor. of P. Taylor 110 acres, SE along NE line of J. G. Houston 160 acres, thence 180 ft. at right angles in 3-acre tract ..... Derrick.
Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract ..... Standing 2,210 ft.
M. O. & T. Corp.'s No. 1 Rigers ..... S.D. for repairs 2,455 ft.
Sampson Oil & Gas Co.'s No. 1 Duckworth & Gilley, 100 ft. from S line and 100 ft. from W line of Blk. 8, P. Singleton Sur. ..... Drlg. 80 ft.
J. E. Stubblefield et al's No. 1 Mitchell, A. T. Woolridge Sur., 81 ft. SW and 4,340 ft. SE of S cor. of Joseph Henson Sur. ..... Gumbo 600 ft; standing.

COLORADO COUNTY

Coyle-Concord Oil Co.'s No. 1 Nelson, I.&G.N. Sur., Sec. 43 ..... Cmtd. 10-in. csg. 680 ft; standing

FORT BEND COUNTY

O'Hara et al's No. 1 Brown, Pilant Lake, Wm. Barrett and Abner Harris Sur., 600 ft. out of SW cor. of Brown 600-acre tract ..... Drlg. wtr. sand 4,195 ft.
Naylor & DeCosta's No. 1 Naylor, 6,350 ft. N, 55 deg. E from SW cor. 653-acre tract in Christman Sur. ..... Cmtd. 12½-in. csg. 1,221 ft.; 9 h

GRIMES COUNTY

Barnett et al's No. 1 Dodd, Timothy Jones Sur., 280 ft. N. Cobb & Rasmussen's No. 1 Dodd ..... Rock 1,792 ft; S.D.
Rianjo Oil Co.'s No. 3 Cuthrell, Patrick B. O'Connor Sur., 150 ft. S, 10 deg. E of No. 2 ..... Abd. 1,150 ft.

HARDIN COUNTY

Votaw Oil Co.'s No. 1 Southwestern Lbr. Co., 150 varas W of C of E line of Mary K. Sherman Sur. ..... Derrick.

HARRIS COUNTY

T. V. Buckholve & Sons' No. 1 Miller, Arthur McCormick Sur. ..... D.S. stuck 547 ft.
Flanigan et al's No. 1 Woodburn, Genoa, August Whitlock Sur., 200 ft. out of NW cor. of tract ..... Derrick.
Flannigan et al's No. 2 Woodburn, 1,400 ft. S and 400 ft. E of NW cor. Aug. Whitlock Sur. ..... Drlg. 520 ft.
Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74 deg. ..... T.D. 5,030 ft; to plug to sand 3,335 ft.

JACKSON COUNTY

Chicago Gulf Corp.'s No. 4 Druschell (W.O.) ..... No report.
Chicago Gulf Corp.'s No. 10 Druschell, Hayes Sur., 1,300 ft. NW of No. 3 ..... No report.

JASPER COUNTY

Hext Drlg. Co.'s No. 1 Flourney, B. F. Jones Sur., 900 ft. NW of Heimerich & Payne's No. 1 Flourney ..... T.D. 4,005 ft.; shut down.
Rio Neches Oil Co.'s No. 1-B Boykin, B.B.B.&C. Sur., 150 ft. W, 750 ft. N of SE cor. of 160-ac. tract ..... Rig.

JEFFERSON COUNTY

John I. Pipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 205-acre tract ..... Abd. 2,675 ft.
Jack Shultz' No. 1 M. O. Todd, 200 varas S and 58 varas E of NW cor. of Wm. Carr Sur. ..... Drlg. shale 5,256 ft.

LIBERTY COUNTY

Bain-Rheubotham's No. 1 J. M. Neal, Edward Tanner Sur., 1,800 ft. E, 1,300 ft. N of most westerly NW cor. of Margaret Evans Sur. ..... Moving in rig.
Devore Oil Co.'s No. 1 Finley, 10,500 ft. from E line and 2,000 ft. from S line of A. B. Hardin Sur ..... Drlg. gumbo 3,698 ft.

MATAGORDA COUNTY

Dr. Griffith et al's No. 3 Baer, Big Hill, 5,000 ft. N, 3,000 ft. E from SW cor. of Seth Ingram Sur. ..... Drlg. gumbo and boulders 1,837 ft.
United North & South Oil Co.'s No. 1 Stoddard, J. C. Keller Sur., 150 ft. W and 545 ft. N of SE cor. Blk. 53, Buckeye Townsite ..... Preparing to set screen 7,829 ft.

MONTGOMERY COUNTY

Alpha Oil Co.'s No. 1 Conroe, A. McCowan Sur. ..... Tentative location.
Gohlson Bros. and Rycade Oil Corp.'s No. 1 Drought 3,340 ft. along N line of Kronkrite Sur., from NE cor., thence 250 ft. S at right angles ..... Rigging up.
Heep Oil Corp.'s No. 1 Roberts, Wm. H. Harrison Sur., 450 ft. out of SE cor. of tract ..... Drlg. 200 ft.
Heep Oil Corp.'s No. 1 J. R. Freeman, John Davis Sur., 450 ft. from S line in center of 36.46-ac. tract .... Drlg. shale 3,305 ft.
Pevehouse Oil Co.'s No. 1 Sealey, Jas. Pevehouse Sur., 1,575 ft. N of N line of Horton & Woodson's 1.562-acre tract and 2,226 ft. E of W line of H.&W. 1,870-acre tract ..... Shut down 3,984 ft.
Smith & McDaniel's No. 1 Sealey, J. C. Pitts Sur., just NE of center of S 1,500 ac. of sur. ..... Tentative location.
Strake Oil Corp.'s No. 2 South Texas Development Co., Theo. Slade Sur., 2,220 ft. S 10 deg. E of No. 1 ... Coring sand and shale 4,796 ft.
Wilson Oil Co.'s No. 2 Leiberman (Kelley-Baker), 7,175 ft. from W line and 75 ft. from S line of D. James Sur. ..... T.D. 5,071 ft.

NEWTON COUNTY

R. T. Briscoe et al's No. 1-A Joe Inman, 1,950 ft. E and 500 ft. N of SW cor. J. M. Scott Sur. ..... T.A. 1,795 ft.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... T.D. 4,655 ft.; to set 6¼-in. csg.
Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Shut down 2,275 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... Shut down 3,162 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Shut down 1,517 ft.

REFUGIO COUNTY

Humble Oil & Ref. Co.'s No. 1 O'Connor (D.D.), 6,012 ft. S from NE cor. along SE line of Lon T. Rios Sur., thence 7,375 ft. W at right angles in John Keating Sur. ..... Sandy shale showing oil 4,399 ft; set screen.
Humble Oil & Ref. Co.'s No. 2 O'Connor, John Keating Sur., 12,625 ft. N of S line at right angles and 8,158 ft. W of E line at right angles ..... Drlg. shale 4,221 ft.

SAN JACINTO COUNTY

Seven Wells Oil Co.'s No. 1 Foster Lumber Co., 3,000 varas from the E line and 2,000 varas from the S line of H. Alsbury Sur. ..... Drlg. 867 ft.

TRINITY COUNTY

John Deering's No. 1 J. B. Gibson ..... S.D. 2,226 ft.
Joseph M. Weaver's No. 1 Thompson, 150 ft. out of NE cor. of I.&G.N. Sur., No. 47 ..... Drlg. wtr. sand 2,508 ft.

VICTORIA COUNTY

Bunte et al's No. 2 Keeran, Martin DeLeon Sur., 200 ft. E of No. 1 ..... Drlg. sticky shale 5,019 ft.
T. B. Slick Estate's No. 2 McFaddin, J. Varian Sur., 3,500 ft. NW of No. 1 and 1,100 ft. NE at right angles to SW line of lease ..... Sand showing oil 4,485-94 ft.; cmtd. 9-in. csg.
Houston Oil Co.'s No. 1-A McFaddin, 200 ft. from NE line, 240 ft. from SE line of I.R.R. Sur. No. 20 ..... Drlg. sandy shale 3,813 ft.
The Texas Company's No. 4 McFaddin, 86 deg. E, 1,723½ ft. from NE cor. of Andrew J. Gray Sur. in John M. Rine Sur. ..... T.D. 2,840 ft; to sidetrack.

WALKER COUNTY

Hart Oil Co.'s No. 1 Thompson Lbr. Co., Jose Ortega Sur., 1,265 ft. S, 1,876 ft. W of SW cor. of J. B. Gibson's 71-acre tract ..... Shut down for repairs 2,090 ft.
Geo. F. Kerr's No. 1 Smithers Bros., S. Manning Sur. ..... Drlg. sand 1,817 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... No report.

SOUTH LOUISIANA

ASCENSION PARISH

McElroy Pet. Co.'s No. 2 Lacey, 150 ft. S, 150 ft. W of NE cor. of Sec. 29-10s-4e ..... Fishing D.S. 4,560 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shut down 3,650 ft.

CAMERON PARISH

Brownie-Babbette Oil Co.'s No. 1 R. A. Moore, 562 ft. W, 50 ft. S of NE cor. E half SE of Sec. 18-12s-12w.. Drlg. sandy shale 5,204 ft.

EVANGELINE PARISH

Emile LeDeau's No. 1 Vidrine, 260 ft. W and 350 ft. S of NE cor. of Sec. 47-3s-2e ..... Shut down 1,420 ft.

IBERIA PARISH

Warrick Oil Co.'s No. 1 Bernard, 912 ft. N and 150 ft. E of SW cor. Sec. 54-12s-7e ..... Drlg. 1,936 ft.

IBERVILLE PARISH

Standard Oil Co.'s No. 2 Myrtle Grove-Wilbert, Bayou Choctaw, 2,040 ft. N and 600 ft. W of C of Sec. 52-9s-11e ..... No report.
Standard Oil Co.'s No. 2 Gay, Bayou Choctaw, 4,500 ft. N and 600 ft. E of SW cor. SE of Sec. 52-9s-11e..... No report.

PLAQUEMINES PARISH

Lake Washington-Freeport Sulphur Co.'s No. 1 Cockrell-Moran, Sec. 14-20s-26e, 3,442 ft. E and 46 ft. N of station ..... Drlg. anhydrite 1,292 ft.

POINTE COUPEE PARISH

Grand Bay Oil & Gas Co.'s No. 1 Moniotte, 10,140 ft. S and 13,450 ft. E of NW cor. Twp. 5s-11 in Sec. 34.... Shut down 310 ft.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e ..... T.D. 6,002 ft; plugged to 3,882 ft.
Freeport Sulphur Co.'s No. 2 Wurzlow, Bay St. Elaine, 980 ft. S and 850 ft. W of NE cor. of Sec. 17-22s-18e. Sulphur test.
The Texas Company's No. 5 State, Dog Lake, 2,270 ft. S and 450 ft. E of NW cor. of Sec. 5-22s-16e ..... Drlg. sand and lime 3,806 ft.
The Texas Company's No. 2 La.L.&E., Lake Barre ..... Set 45 ft. of 4¾-in. screen 3,870 ft.
The Texas Company's No. 10 State, Lake Barre ..... Location.
The Texas Co.'s No. 14 State Lake Barre, 400 ft. S, 850 ft. W, NW cor. Sec. 30-21s-20e, in Sec. 37-21s-19e ..... Spudded.

VERMILLION PARISH

Pure Oil Co.'s No. 2 Alliance Trust Co., 1,875 ft. E, 950 ft. S, NW cor., Sec. 34-11S-1w ..... T.D. 3,552 ft.; killed well to deepen.
Pure Oil Co.'s No. 1 Mulvey Irrigation (Gueydan), 253 ft. S, 390 ft. E of No. 2 Alliance, in Sec. 34-11s-1w.. Location.

WEST FELICIANA PARISH

Putnam Synd.'s No. 3 Como Plantation, Sec. 51-1s-14w . Shut down 2,449 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 87)

SABINE PARISH

J. H. Askew's No. 1 Sabine Lbr. Co., NE NE, Sec. 9-7-13 Derrick.
R. W. Boulding's No. 1 Williams, Sec. 17-7-10, 200 ft. S and E, NW cor. SW NE ..... S.D. 500 ft.
J. M. Bridges' No. 1 Armstrong, 360 ft. N, 320 ft. E, SW cor. SE, Sec. 28-10-11 ..... Drlg. 2,405 ft.
Broderick & Calvert's No. 1 Costello, Sec. 2-7-14, 375 ft. S, 150 ft. W, NE cor. SE NW ..... S.D. 150 ft.
W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Derrick.
W. M. Coates' No. 1 Gray, 330 ft. N and W, SE cor. SW, Sec. 3-7-13 ..... Location.
W. M. Coates' No. 2 Gray, 330 ft. S and W, NE cor. SE SW, Sec. 3-7-13 ..... Location.
Craig et al's No. 1 Travis, Sec. 13-7-11, 200 ft. S and E, NW cor. SE NW ..... Drlg. 240 ft.
B. A. Ferrell's No. 1 Haley, Sec. 6-7-12, 300 ft. S and E, NW cor. NW SW ..... Drlg. 1,800 ft.
M. L. Friend's No. 1 Stille, 330 ft. N and E, SW cor. SE SW, Sec. 35-8-13 ..... Location abd.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S. 200 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Coring shale and lime 5,240 ft.
R. L. Gay, tr.'s No. 11 Bowman-Hicks, 330 ft. N and W, SE cor. NE NE, Sec. 14-7-14 ..... Location.
J. I. Hall's No. 1 Williams, SE NW, Sec. 3-7-10 .... Bailing 2,635 ft.
D. Holcomb's No. 1 Petty, 330 ft. S and W, NE cor. SW SW, Sec. 12-7-11 ..... Set 10-in. 100 ft; drlg. 1,150 ft.
G. E. Jordan's No. 1 Dew, 330 ft. N, 340 ft. E, SW cor. SW SE, Sec. 34-8-11 ..... Location.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13.. S.D.; W.O. 3,128 ft.
A. D. King, tr.'s No. 1 Germain, Sec. 7-7-10, 330 ft. E, 518 ft. N, SW cor. NE NE ..... S.D. for wtr. 1,520 ft.
A. D. King, tr.'s No. 1 T. L. Andries, 200 ft. S, 300 ft. E, NW cor. SE SE, Sec. 15-7-11 ..... Location.
A. D. King, tr.'s No. 1 J. J. Andries, 140 ft. S, 240 ft. W, NE cor. SE SW, Sec. 15-7-11 ..... Derrick.
M. J. Kissick's No. 1 Buvina, 570 ft. S, 14 ft. W, NE cor., Sec. 20-7-11 ..... Drlg. 1,725 ft.
W. F. Lacey's No. 3 McNeely, Sec. 14-7-11, 300 ft. S and E, NW cor. NE NE ..... Derrick.
Jack Lanier's No. 1 Petty, Sec. 11-7-11, 330 ft. N and W, SE cor. NE SE ..... 800 ft. oil in hole 2,575 ft.
Geo. LeGrand's No. 1 McGough, Sec. 3-8-10.. ... ... Set 10-in. 100 ft.
Lowery & Greene's No. 1 Martinez, 330 ft. N and W, SE cor., Sec. 34-8-13 ..... Rigging up.
Mays et al's No. 1 Delong, Sec. 5-7-10, 275 ft. N, 175 ft. W, SE cor. SE SW ..... Derrick pattern.
Hill Myers' No. 1 Garcia, 200 ft. N and W, SE cor. SW NW, Sec. 4-7-13 ..... Derrick.
E. F. Neely's No. 1 Cobb & Alford, Sec. 14-7-11, 200 ft. S, 100 ft. E, NW cor. NE SW ..... W.O.S.R. 2,485 ft.
E. F. Neely's No. 1 Rains, 660 ft. N, 100 ft. W, SE cor., SW NW, Sec. 14-7-11 ..... Set 6-in. 2,400 ft.
C. E. Neff, tr.'s No. 1 Snell, Sec. 9-7-11, 350 ft. N, 660 ft. W, SE cor. Sec. ..... Bailing 2,509 ft.
Palmer & Smitherman's No. 1 La. Long Leaf Lbr. Co., Sec. 12-7-11, 330 ft. S and E, NW cor. NE SE..... Location.
Palmer & Smitherman's No. 2 La. Long Leaf Lbr. Co., 330 ft. S and W, NE cor. SE, Sec. 12-7-11..... Location.
Palmer & Smitherman's No. 3 La. Long Leaf Lbr. Co., 330 ft. S and W, NE cor. NE SW, Sec. 12-7-11..... Set 6-in. 2,470 ft; drlg. 2,620 ft.
Pelican Nat. Gas Co.'s No. 8 Sabine Lbr. Co., 330 ft. S and W, NE cor. NE SW, Sec. 3-7-13 ..... Drlg. 1,940 ft.
H. W. Perritt's No. 1 Brown Lbr. Co., Sec. 6-7-10, 330 ft. N and E, SW cor. SW SE ..... Teated dry 2,763 ft; W.O.
Roy Raines et al's No. 1 Beard, 720 ft. E. 700 ft. N. SW cor. SW SE, Sec. 8-8-10 ..... Derrick pattern.

F. G. Reed et al's No. 1-A McNeely, 200 ft. N and E, SW cor. NW NE, Sec. 14-7-11.....Set 6-in. 2,385 ft.
Ruston Drlg. Co.'s No. 1 Cutrer, 300 ft. S and E, NW cor. NW NE, Sec. 13-7-11.....Dry and abd. 2,632 ft.
Sabine Prod. Co.'s No. 1 Sabine Lbr. Co., 330 ft. S and W, NE cor. NW SE, Sec. 3-7-13.....Set 10-in. 100 ft; drlg. 800 ft.
H. R. Smith et al's No. 1 La. Long Leaf Lbr. Co., Sec. 12-7-11, 330 ft. S and W, NE cor. NW SW.....Location.
Southland Drlg. Co.'s No. 2 F. Martinez, Sec. 11-7-13, 330 ft. S and E, NW cor. NE NW.....Derrick pattern.
Southland Drlg. Co.'s No. 1 Gilbert Martinez, Sec. 2-7-13, 330 ft. N and W, Sec. cor. SW SW.....Derrick pattern.
Southland Drlg. Co.'s No. 1 Frost Lbr. Co., 330 ft. N and W, SE cor. NE NE, Sec. 13-9-11.....Set 12½-in. 103 ft.
State Prod. Co., Inc.'s No. 1 Davis, Sec. 17-7-10, 150 ft. N and E, SW cor. SW NW.....Drlg. 450 ft.
State Prod. Co., Inc.'s No. 1-B Davis, 200 ft. N and E, SW cor., Sec. 17-7-10.....Derrick pattern.
A. F. Tarver's No. 3 Cutrer, Sec. 12-7-11, 1,120 ft. E, 300 ft. N, SW cor. NW.....W.O.S.R. 2,600 ft.
The Texas Co.'s No. 2-B Grauque, Sec. 10-7-13, 1,700 ft. W, 330 ft. S, NE cor. Sec.....Tested dry 2,445 ft; drlg. 2,450 ft.
C. H. Tuttle's No. 2 Byrd, 138 ft. S, 134 ft. E, NW cor., Sec. 7-7-10.....Rigging up.
Williams & Spiers' No. 1 Williams, Sec. 31-8-10, SE cor. SE SW.....Derrick.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-13.....S.D. 3,545 ft.

WEBSTER PARISH

J. K. Wadley's No. 1 Matthews, Sec. 11-23-9, 130 ft. N, 330 ft. E, SW cor. SW NE.....Drlg. plug 2,795 ft; T.D. 2,800 ft.

ARKANSAS

ASHLEY COUNTY

D. S. Brookn, Inc.'s No. 1 Crossett Lbr. Co., 330 ft. N and E, SW cor. SW SE, Sec. 31-15s-6w.....Drlg. black shale 2,955 ft.

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenwelder, Rhea & Kitchen, Sec. 13-17-22.....S.D. 814 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-3.....S.D. 1,350 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12.....Rigged up and S.D.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9.....S.D. 3,740 ft.

CRAWFORD COUNTY

Ozark Nat. Gas Co.'s No. 1 C. E. Jones, 660 ft. N, 372 ft. E, SW cor. SE SW, Sec. 32-9-31.....Drlg. shale 980 ft.

DALLAS COUNTY

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. SE, Sec. 11-9-15.....S.D. 2,575 ft.
Zepp O. & G. Co.'s No. 3 Hillman, Sec. 20-10-13, 180 ft. N, 450 ft. E, SW cor. NW NE.....Location.

DREW COUNTY

Co-Operative Dev. Co.'s No. 1 Ogles, Sec. 35-15-5, 330 ft. S and E, NW cor. NE NW.....S.D. 1,890 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16.....S.D. 1,306 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7.....S.D. 2,800 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19.....Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 15-6-26.....S.D.; W.O. 3,570 ft.

MILLER COUNTY

C. E. Litchfield's No. 1 Hervey, 525 ft. S, 350 ft. W, NE cor. NE NW, Sec. 2-15-26.....T.A. 2,885 ft.
Fitzwater et al's No. 1 Beck, Sec. 35-15-26.....Drlg. 2,918 ft.
W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27.....D.S. stuck 2,600 ft.

OUACHITA COUNTY

Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17..W.O.S.R. 2,208 ft.
McLean et al's No. 1 L. D. Neely, Sec. 23-15-16, 200 ft. N and W, SE cor. NE SW.....S.D. 102 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-3-14.....T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-3-24.....S.D.; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23.....Skidding over; to drill new hole.

PRAIRIE COUNTY

Powell Creek O. & G. Co.'s No. 1 Kloss, NE SW, Sec. 3-4n-6w.....Partly rigged up and S.D.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26.....S.D.; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29.....S.D. 1,860 ft.

SEVIER COUNTY

Tristate Oil Co.'s No. 1 Grimble, Sec. 34-8-22, S½ SW...S.D. 950 ft.

ST. FRANCIS COUNTY

Field & Jones' No. 1 F. M. White, Sec. 1-4n-2e, SW cor. NW.....S.D. 700 ft.

UNION COUNTY

Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16.....T.A. 2,124 ft.
H. H. Helms' No. 1 C. H. Murphy, NE cor. NW NE, Sec. 31-16-14.....S.D. 2,875 ft.
Pigeon Hill Oil Co.'s No. 1 Union Sawmill Co., 330 ft. S and W, NE cor. NW SW, Sec. 19-17-12.....Testing 2,434 ft.
Wilson & Chapman's No. 1 King, Sec. 3-18-13, 330 ft. N and E, SW cor. NE NE.....Derrick.
Wilson & Chapman's No. 1-A D. Norman, 330 ft. S and E, NW cor. N½ NE SE, Sec. 3-18-13.....S.D. 1,678 ft.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30.....S.D. 1,795 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Lockett's No. 1 Falcon, Sec. 26-7-21.....S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Logan & Elliott's No. 1 Smith, 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur.....S.D. 4,505 ft.
Lanford et al's No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur.....S.D. 1,792 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur.....S.D. 3,000 ft.

CASS COUNTY

Davis & Pigg's No. 1 Roy Bryan, SW cor. Roy Bryan 88-ac. tr., Albert H. Lattimer Sur.....Arranging to resume drlg. 2,860 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur.....S.D. 4,390 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 579 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur.....S.D. 2,280 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur.....S.D. 960 ft.

HARRISON COUNTY

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 350 ft. from E line of 105-ac. tr., Findley Sur.....S.D. 4,195 ft.
Tom Medders et al's No. 1 Davidson, NW cor. R. W. Starr Sur.....Dry and abd. 3,757 ft.
J. G. Peterbaugh et al's No. 1 Colluns, 330 ft. from W line, 1,060 ft. from S line of 75-ac. tr., W. G. Pentecost Sur.....Dry and abd. 3,616 ft.
Ryan Cons. Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur.....Derrick.
Triangle Drlg. Co.'s No. 1 Platt, 1,125 ft. W, 1,995 ft. N, SE cor. F. C. Barker Sur.....Location.

MARION COUNTY

Baunoch Dev. Co.'s No. 1 Miller, 725 ft. N, 1,470 ft. E, SW cor. H. Fulgram Sur. (was Gist, Claunch & Dodson).....T.A. 4,120 ft.
Benedum & Trees' No. 1 Tyler, 400 ft. from S line, center of E and W lines, Wm. Holloway Sur.....Dry and abd. 3,751 ft.
Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur.....Arranging to resume drlg. 2,380 ft.

PANOLA COUNTY

Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur...S.D. 450 ft.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur.....S.D. 2,685 ft.
J. L. Nelson et al's No. 1 J. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in James Hanks Sur.....S.D. 3,055 ft.

SHELBY COUNTY

E. L. Chapman's No. 2 Pickering Lbr. Co., 600 ft. N, 400 ft. E, SW cor. D. S. Height Sur.....Set 12½-in. 180 ft; S.D. 736 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur.....S.D. 3,951 ft.
Fuller & O'Brien Bros.' No. 1 Frost-Johnson Lbr. Co., 200 ft. S, 150 ft. W, NE cor. 168-ac. tr., Aaron Castleberry Sur.....S.D. 2,345 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur.....Fishing 3,282 ft.
Henry Mauilding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 20-ac. tr., A. D. Fountain Sur.....Fishing for D.S. 3,276 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr.....Pulling 6⅝-in. csg. 3,393 ft.
Ridgeway et al's No. 1 Polley, Dominguez Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr.....Drlg. 1,250 ft.
Sedberry et al's No. 1 Pickering Lbr. Co., 600 ft. N, 400 ft. E, SW cor. Jane Stoddard Sur.....Drlg. 960 ft. (corrected).
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur.....S.D. 20 ft.
Western World's No. 1 Foster, Billingsby-Jeremiah Bowlin Sur.....Drlg. shale 2,695 ft.
Wray & Dunbar's No. 1 C. A. Hayden, 600 ft. N and W SE cor. 152-ac. tr. in D. T. F. Yordt Sur.....Drlg. 1,110 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, well, farm name, section and block— Remarks:
Calatex O. & G. Co.'s No. 1 Scott, Sec. 5-16-16, 1,320 ft. E, 300 ft. N, SW cor.....Drlg. 2,625 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15.....S.D. 2,275 ft.

OUACHITA PARISH

Carbon Con.'s No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N, 7,475 ft. W of cors. of Secs. 25, 26 and 49, in Sec. 50.....Location.

SABINE PARISH—ZWOLLE

O. J. Baird's No. 2 Duggan, Sec. 14-7-11, 200 ft. S and E from cen. Sec.....W.O.S.R. 2,509 ft.
W. M. Coates' No. 1 LaRoux, 330 ft. N and E, SW cor. SE, Sec. 36-8-13.....Location.
W. M. Coates' No. 1 Nulton, 224 ft. E, 330 ft. S, NW cor. SW NW, Sec. 1-7-13.....Derrick.
Crescent Drlg. Co.'s No. 4 Byrd, 200 ft. N and W, SE cor. NW NE, Sec. 12-7-11.....Set 6-in. 2,420 ft; testing 2,521 ft.
Dengall O. & G. Co.'s No. 1 E. Nulton, 224 ft. E, 330 ft. N, SW cor. NW NW, Sec. 1-7-13.....Drlg. 1,870 ft.
Dengall O. & G. Co.'s No. 1-F Nulton, 330 ft. S and E, NW cor. SW NW, Sec. 2-7-13.....Location.
Dengall O. & G. Co.'s No. 1-G Nulton, 350 ft. N, 330 ft. W, SE cor. NE NE, Sec. 3-7-13.....Drlg. 1,850 ft.
Depression Oil Co.'s No. 1 Peters, 355 ft. N, 340 ft. W, SE cor. SW SW, Sec. 11-7-11.....Drlg. 2,100 ft.
M. L. Friend's No. 1 Ezernack, 250 ft. N, 330 ft. W, SE cor. N½ NE NE, Sec. 2-7-13.....Set 10-in. 100 ft; drlg. 300 ft.
M. L. Friend's No. 1 Nulton, 300 ft. S and W, NE cor. SE NE, Sec. 2-7-13.....Set 10-in. 100 ft.
J. E. Grandstaff's No. 1 Johnson, S½ SW SW, Sec. 2-7-11.Rigging up.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11.....Tested dry; W.O. 2,606 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11.....Tested dry; W.O. 2,680 ft.
Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-12.....Drlg. lime 4,912 ft.
Pelican Nat. Gas Co.'s No. 11 La. Long Leaf Lbr. Co., Sec. 10-7-11, 330 ft. N and W, SE cor. NE NW.....W.O.S.R. 2,592 ft.
Pelican Nat. Gas Co.'s No. 13 La. Long Leaf Lbr. Co., 330 ft. N and W, SE cor. NE SE, Sec. 9-7-11.....Set 6-in. 2,368 ft.
C. T. Ruffian's No. 1 Lilley, 300 ft. S and W, NE cor. NW, Sec. 8-7-11.....Rigging up.
Sabine Prod. Co.'s No. 2 Pearce, Sec. 10-7-11, 330 ft. S and E, NW cor. SE NW.....S.O. 2,690 ft; S.D.; W.O.

UNION PARISH

Interstate Nat. Gas Co.'s No. 2 Steele, 1,980 ft. W, 660 ft. N, SE cor., Sec. 26-20-3e.....Rigging up.
Interstate Nat. Gas Co.'s No. 3 Steele, 660 ft. S and E, NW cor. NE, Sec. 26-20-3e.....Location.
Southern Carbon Co.'s No. 59 fee, 660 ft. N, SE SW cor. SE, Sec. 17-20-4e.....Drlg. 1,750 ft.

ARKANSAS

UNION COUNTY—EL DORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15.....Junked and abd. 7,255 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15.....Cored sand and lime 3,611 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13.....T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13.....Location.
Wilson & Chapman's No. 1-B Hadley, Sec. 3-18-13, 330 ft. S and W, NE cor. SE NW.....T.A. 3,545 ft.
Wilson & Chapman's No. 2 Emily King, Sec. 3-18-13, 150 ft. S, 150 ft. E, NW cor. NE NE.....S.D. 1,730 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur.....S.D. 3,360 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur.....Location.

MISSISSIPPI

HINDS COUNTY

McGuire et al's No. 1 Spring Lake, Sec. 11-5n-1e, 250 ft. N, 450 ft. W, from center of Sec.....Drlg. plug 2,435 ft.

RANKIN COUNTY

Meredith & Smith's No. 2 Strawder, Sec. 12-5n-1e, 2,582 ft. W, 300 ft. N, SE cor. NE.....Drlg. plug 2,370 ft.
Meredith-Smith et al's No. 3 Strawder, 400 ft. S, 750 ft. W, NE cor., Sec. 12-5n-1e.....Derrick pattern.

Owen & Weaver's No. 1 Fitzhugh, 1,740 ft. E, 225 ft. N, SW cor., Sec. 1-5n-1e.....Drlg. 450 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

CLARKE COUNTY

Company, well, farm name, section and block— Remarks:

F. X. Gowans et al's No. 1 Elfring, SE NE, Sec. 13-1n-14e. Rigging up.

HINDS COUNTY

Atkins et al's No. 1 Crane Lawrence, Sec. 23-6n-1e, 300 ft. E, 132 ft. N, SW cor. NE SE.....Rigged up.

Miss.-Minn. Oil Co.'s No. 1 Edwards Land Co., Sec. 23-6n-4w, 1,200 ft. N and E from center of Sec. .....Drlg. 2,920 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 .....T.A. 3,408 ft.

LAMAR COUNTY

Stauffer & Kourl's No. 1 Bond, SE NE, Sec. 18-2n-14w..Testing 1,090 ft.

LOWNDES COUNTY

Lowndes County Oil & Dev. Co.'s No. 1 Carr est., Sec. 34-17-16e, 1,320 ft. E, 330 ft. S, NW cor. Sec. .....Rigging up.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E, SW cor. SE, Sec. 25-6n-11e.....S.D. 840 ft.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e..S.D. 1,735 ft.

RANKIN COUNTY

Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.

Orr et al's No. 1 Hanna, Sec. 14-5n-1e, 500 ft. E, 250 ft. S, NW cor. SW.....S.D. for casing 2,380 ft.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9.....S.D. 190 ft.

SHARKEY COUNTY

United Gas Public Service Co.'s No. 1 Lenhart, Sec. 14-14n-6w, 660 ft. N of CSL of Sec. .....Drlg. 3,694 ft.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.

WILDCAT OPERATIONS IN ALABAMA

CLARKE COUNTY

Company, well, farm name, section and block— Remarks:

Tidal Oil Co. et al's No. 1 Hobson, Sec. 33-6n-2e.....Drlg. 1,792 ft.

LAMAR COUNTY

Vernon O. & G. Corp.'s No. 1 Gardner, NW NW, Sec. 22-15s-16w .....Drlg. 1,130 ft.

WASHINGTON COUNTY

South Alabama O. & G. Co.'s No. 1 Wilson, Sec. 26-7n-1w. Rigging up.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 91)

SALT FLATS POOL—CALDWELL COUNTY

John Storey's No. 1 Dickerson, 150 ft. to N of center of S line of tr., John R. Rains Sur. .....Dropped till work starts.

WEBSTER POOL—CALDWELL COUNTY

C. J. Webster Oil & Gas Co.'s No. 1 C. F. Robertson, 700 ft. from E line, 200 ft. from N line of 100-ac. tract, John A. Neill Sur. .....Moving in.

COLE POOL—DUVAL COUNTY

Cole Pet. Co.'s No. 75 Benavides, 365 ft. from NE line, 150 ft. from NW line, Blk. 8, Sec. 18, Mariana Arispe grant .....T.D. 5,010 ft.; coring.

Co-operative Drilling Co.'s No. 5 John Dinn, 264 ft. from N line, 150 ft. from W line of Blk. 5, Sur. 454..T.D. 800 ft.; drlg.

GOVERNMENT WELLS—DUVAL COUNTY

Duval Oil Corp.'s No. 9 Bishop Cattle Co., 2,216 ft. to W line, 2,221 ft. to N line of Sur. No. 135 .....T.D. 2,352 ft.; drlg.

Humble Oil & Refining Co.'s No. 4 White, 2,310 ft. from S line, 1,320 ft. from W line of Sur. 58 .....Location.

Humble Oil & Ref. Co.'s No. 5 Paul White, 1,980 ft. from W line, 990 ft. from S line of Sur. 58 .....Location.

SLICK POOL—GOLIAD COUNTY

T. B. Slick estate's No. 2 Allen, 1,660 ft. from NE line, 330 ft. from NW line of tr. in Obid Marshall Sur. T.D. 4,211 ft.; drlg. deeper.

DARST CREEK—GUADALUPE COUNTY

Humble Oil & Ref. Co.'s No. 4 Dan Denman, 500 ft. W of SW cor. of John F. Camp's 50-ac. lease, 150 ft. S of road, Wm. Arrington Sur. .....T.D. 850 ft.; drlg.

Humble Oil & Ref. Co.'s No. 5-C Sue Denman, 525 ft. from E line, 600 ft. N of No. 4-C, Wm. Arrington Sur. .....Derrick.

Sun Oil Co.'s No. 2 Dowdy, 500 ft. to N line of lease, 700 ft. to W line or Sur. .....Location.

JACOB POOL McMULLEN COUNTY

Jacob, Buzzini & Pickett's No. 3-A Jacob, 740 ft. N, 75 deg. W of No. 2-A Jacob .....Spudded in.

Longhorn Oil Co. and American Gas Co.'s No. 1 Lark, 2,790 ft. from N line, 1,150 ft. from W line of Lark tract, E. W. B. Scrugham Sur. .....Moving in.

ADAMS FIELD—MEDINA COUNTY

Yantis and others' No. 1 Adams, 420 ft. from S line, 2,000 ft. from W line of F. Mumme Sur. .....Location.

CAMP-STANOLIND—NUECES COUNTY

John F. Camp and Stanolind Oil & Gas Co.'s No. 2 King, 660 ft. from S and E lines of Sec. 23 of King Subd...Location.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Perkins and LeGasse, 330 ft. from N and E lines of 245-ac. tr., Sec. 26, Shepard Subd. .....T.D. 4,566 ft.; blew out and cratered.

V. B. Hillegeist's No. 1 McGregor, 150 ft. from W line, 330 ft. from S line of Sec. 311 .....Spudded in.

Rutherford Drlg. Co.'s No. 1 Hunter, 150 ft. from S and W lines of 10-ac. tr. .....T.D. 4,560 ft.; set csg.

Saxet Oil Co.'s No. 5 Weil, 3,041 ft. to N line, 333 ft. to W line .....T.D. 2,500 ft.; standing.

Tule Lake Oil Co.'s No. 1 Hocker & Sevier, 200 ft. from E line, 150 ft. from S line of tract .....T.D. 3,500 ft.; drlg.; spudded in as Kepley's No. 1 Speer & Hocker.

WHITE POINT—SAN PATRICIO COUNTY

United Prod. Co.'s No. 3 Cage .....T.D. 4,925 ft.; drlg.

LOS OLMOS POOL—STARR COUNTY

Allison & Roberts' No. 1 Kelsey Bass in Sec. 6, Subd. of Porcions 75, 76, 77 .....Location.

Bennett O. & G. Co.'s No. 1 Seabury et al, Porcion 75....Moving in.

H. H. Davis' No. 6 Kelsey Bass, 20 ft. from E line, 600 ft. from N line of SW NW Section 6, Subd. of Porcions 75, 76, 77 .....Spudded in.

Day & Co.'s No. 1 Kelsey Bass, 150 ft. from S line, 400 ft. from W line of W 20 acres of NE NW of Sec. 6, Subd. of Porcions 75, 76, 77 .....Rigging up.

Felder, Mitchell & Barnsley's No. 1 Kelsey-Bass, in Sur. 8, Subd. of Porcions 75, 76 and 77 .....T.D. 320 ft.; standing.

Griffin et al's No. 1 Bass, 150 ft. from N and W lines of NW NW Sur. 11, Subd. Porcions 75, 76, 77 .....T.D. 1,200 ft.; drlg.

R. A. Hoffman's No. 1 Goodrich, 150 ft. from N and W lines of Blk. 6, Tract 5, Porcion No. 81 .....Location.

Hooks & Weaver's No. 6 Kelsey Bass, 150 ft. from N and E lines of NE SW Sec. 6, Subd. of Porcions 75, 76, 77 .....T.D. 468 ft.; set csg.

M. A. Landrum's No. 2 Kelsey-Bass, 519 ft. from S line, 150 ft. from E line of Sur. 6, Porcions 75, 76 and 77 .....Location.

M. A. Landrum's No. 1 A. K. Bass, Sec. 6, 150 ft. to S and E lines of lease .....Location.

Los Olmos Oil & Gas Co.'s No. 13 Kelsey Bass, 500 ft. from W line, 150 ft. from S line of NW NW Sur. 7, Porciones 75, 76, 77 .....Location.

Tom C. Patton's No. 1 Kelsey-Bass, 150 ft. to W line, 150 ft. to S line of 20-ac. tract in NW NE of Subd. 8 of Porcions 75, 76 and 77 .....T.D. 1,050 ft.; drlg.

R. H. Pursley's No. 2 Seabury et al, 650 ft. from S line, 150 ft. from E line of Pursley 80-acre lease in Share 5 of Partition of Porcion 75 .....T.D. 490 ft.; drlg.

Quien Sabe Oil Co.'s No. 1 Kelsey Bass, 300 ft. from N line, 750 ft. from W line of NE SW Section 8, Porciones 75, 76, 77 .....Location.

Rio O. & G. Co.'s No. 3 Kelsey-Bass, No. 6 Subd., Porcions 75, 76 and 77 .....T.D. 569 ft.; standing.

Sinclair & Rutherford's No. 1 Kelsey Bass, 150 ft. from S and W lines of SE NW Sec. 6, Subd. of Porcions 75, 76, 77 .....Rigging up.

Tarver & Nance's No. 4 Kelsey Bass, 450 ft. from N line, 600 ft. from W line of lease in Sur. 7, Porcions 75, 76, 77 .....T.D. 460 ft.; comp. 50 bbls.

RIO GRANDE CITY POOL—STARR COUNTY

Brady Drilling Co.'s No. 1 Rio Grande City, in center of city Plaza .....Location.

Coastal Oil & Gas Co.'s No. 1 Olivarez, 150 ft. from NE and SE lines of easternmost corner of Share 35, Porcion 80, Camargo .....Derrick.

Gulf Coast Oil Co.'s No. 1 Perez, 150 ft. from N and E lines of Share 16-C, Porcion 80, Camargo .....Location.

R. E. Johnson's No. 1 Seabury, 150 ft. from S and W lines of Share 32, Porcion 80, Jurisdiction of Camargo. Derrick.

Edwin M. Jones' No. 1 Chatfield, 200 ft. from N and E lines of N half of Blk. 3, Tract 21, Porcion 80, Camargo .....Derrick.

King Pin Oil Co.'s No. 1 T. C. Lewis, 207 ft. from E line, 111 ft. from S line of Share 22, Porcion 80, Jurisdiction of Camargo .....Derrick.

R. H. Pursley's No. 1 Hinojosa, center of Blk. 96 of Rio Grande City .....Location.

R. H. Pursley's No. 1 San Juan Plaza, cen. of Blk. 96, Rio Grande City .....Location.

Sioux Oil Co.'s No. 2 Goodrich, 150 ft. from W line, 200 ft. from S line of Blk. 1, Tract 5, Porcion 80, Camargo. Location.

AVIATOR FIELD—WEBB COUNTY

Ross Amigos' No. 1 E. Garcia, 450 ft. from N and E lines of Blk. 46, Sur. 592, Los Ojuelos grant .....T.D. 1,842 ft.; comp. 3,000,000 ft. gas, 510 lbs.

WEST COLE POOL—WEBB COUNTY

French Oil Corp.'s No. 4-A Benavides, 2,640 ft. from N line, 150 ft. from W line of Sur. 659 .....T.D. 1,500 ft.; drlg.

Magnolia Petroleum Co.'s No. 7 Benavides, 2,490 ft. from N line, 200 ft. from E line of Sur. No. 660.....T.D. 2,340 ft.; comp. 100 bbls.

CHAPMAN POOL—WILLIAMSON COUNTY

Westbrook Oil Co.'s No. 8-B Lawrence, 340 ft. NE of No. 7-B, and 150 ft. from SE line of 27-ac. tr. in S. Miller Sur. .....Location.

R. A. Westbrook's No. 9 Simmons, 550 ft. along SE line of J. J. Sides' 10-ac. tr. ,from SW cor., thence 260 ft. SW at right angles and between Nos. 7 and 8 .....Location.

Westbrook Oil Co.'s No. 9-B Lawrence, 340 ft. NE of No. 8-B and 150 ft. from SE line of 27-ac. tr. in S. Miller Sur. .....Location.

ANDREWS POOL—ZAPATA COUNTY

The Major Co.'s No. 1 Benavides, 150 ft. from NW and SW lines of Sur. 12 .....T.D. 1,504 ft.; tested oil and salt water.

ESCOBAS POOL—ZAPATA COUNTY

Allied Gas Co.'s No. 22 Gutierrez, 1,985 ft. from NE line, 275 ft. from SE line of Share 4 of Comitas grant.T.D. 1,483 ft.; comp. 100 bbls.

Allied O. & G. Co.'s No. 23 Gutierrez, 550 ft. from SE line, 1,765 ft. from NE line of Share 4, Comitas grant .....T.D. 350 ft.; drlg.

E. K. Bateman's No. 1 M. Garza Estate, 150 ft. to NE and SE lines of Douglas Subd. of Comitas grant .....Set surface csg.

E. R. Black & Paul S. Williams' No. 1 Comitas grant, 150 ft. from NW and NE lines of Blk. 100 .....Derrick.

F. M. Blair & Son's No. 1 Montemayor, 450 ft. to N, 150 ft. to E line of Blk. No. 1, Sur. 63 .....T.D. 1,390 ft.; drlg.

O. W. Killam's No. 6 Medina, 830 ft. from NE line, 325 ft. from SE line of Share 34, Comitas grant .....T.D. 1,460 ft.; comp. 100 bbls.

O. W. Killam's No. 7 Medina, 524 ft. from NW line, 824 ft. from NE line of Share 34, Comitas grant...T.D. 1,300 ft.; drlg.

McGinley Corp.'s No. 2 G. T. Montemayor, 150 ft. from S and E lines of Blk. 2, Sur. 64 .....T.D. 1,499 ft.; testing.

McGinley Corp.'s No. 1 Jose Bustamente, 1,200 ft. to NE line, 150 ft. to NW line of 105.7-acre Henne, Winch & Fariss tract, Share 35, Comitas grant .....T.D. 300 ft.; drlg.

McGinley Oil Corp., No. 1 G. T. Montemayor, 150 ft. from N and W lines of Blk. 6, Sur. 64 .....Location.

S.R.C. Oil Co.'s No. 9 G. T. Montgomery, 112 ft. from E line, 687 ft. from N line of Blk. 9, Sur. No. 64....T.D. 1,475 ft.; comp. 400 bbls.

The Texas Co.'s No. 8 Measles, 16,757 ft. from W line, 150 ft. from SE line of Cerrito Blanco grant .....Rigging up.

Trevino Oil Corp.'s No. 15 I. G. Trevino, 262 ft. from E line, 326 ft. from S line of Blk. 15, Sur. 412 .....T.D. 1,257 ft.; comp. 50 bbls.

CHARCO REDONDO POOL—ZAPATA COUNTY

Bob & Richey's No. 29 Martinez, 810 ft. from SW line, 360 ft. from SE line of Blk. 24, W. R. Duke Subd., Charco Redondo grant .....Location.

Winsor Oil Co.'s No. 1 Martinez, in NE of Blk. 15, of W. R. Duke Subd., Charco Redondo grant .....Location.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

Week Ending May 14

ATASCOSA COUNTY

Company, farm and location— Remarks:

American Central Oil Co.'s No. 2 Mary McConnell, 150 ft. W of E line, 300 ft. S of No. 1, Blk. 138, W. C. M. Baker Sur., 3 miles W and 6 miles S from Somerset..T.D. 1,660 ft.; standing.

Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1...T.D. 3,240 ft.; drlg.

BASTROP COUNTY

I. L. Champion's No. 1 Owens, 500 ft. to SE line, 600 ft. to SW line of 628-ac. tract, Isaac Cosner Sur.....T.D. 1,400 ft.; drlg.

Lonnie Evans and Dan Auld's No. 1 D. J. Orgain, 2,100 ft. from NW line, 2,775 ft. from SW line of Addison Littleton League .....T.D. 800 ft.; drlg.

E. R. Marts and W. J. Beavens' No. 1 R. L. Carter, 450 ft. from NE line, 150 ft. from NW line of 100-ac. tract in George J. Glasscock Sur. .....T.D. 2,275 ft.; standing

BEE COUNTY

Humble O. & R. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tract in Garrett Roache Sur., S part of county .....T.D. 5,560 ft.; drlg.

J. L. Mauldin's No. 1 Kimball, 300 ft. NE of Grayburg Oil Co.'s No. 1-A Kimball in S. Winship Sur. .....Location.

C. F. Nichols' No. 1 J. P. Harris, Durango grant east of Tuleta ..... Moving in rig.
The Texas Co.'s No. 1 Scott, E of Normanna Field, 500 ft. N and W lines of lease in Jose Maria Uranga grant ..... Rigging up.
Texas Gulf Producing Co.'s No. 1 Webb Hearn, 1,000 ft. N, 43 degrees E, thence 300 ft. NW at right angles from Hurlburt's No. 1 Wood in P. T. Irrigation Co. Sur. ..... T.D. 2,690 ft.; drlg.

BELL COUNTY

J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur. .... T.D. 450 ft.; S.D.

BEXAR COUNTY

Amsden-Ingersoll-Miller's No. 1 Strumberg, 450 ft. to W line, 1,020 ft. to N line of tract, 12 miles SW of San Antonio ..... T.D. 810 ft.; S.D.
S. W. Blount's No. 1-A S. A. Land & Dev. Co., 10 ft. from No. 1 in I. Perez Sur. ..... T.D. 610 ft.; drlg.
Lloyd Bender's No. 1 Suburban Irrig. Farms, 800 ft. No. of cen. of N line of K. K. Herring tract, 1 mile E of Kirk ..... T.D. 771 ft.; drlg.
Eckert et al's No. 1 Edwards, 150 ft. to N and W lines of farm in Martinez Sur. ..... T.D. 1,490 ft.; standing.
Jones & Voltz' No. 1 Bonkowsky, 150 ft. to N and W lines of William McMenenes Sur., 12 miles E of San Antonio ..... T.D. 907 ft.; standing.
Moore-Jauer's No. 1 Holly R. Ellison, 2,916 ft. from E line, 1,500 ft. from S line of farm in T. York Sur... T.D. 2,170 ft.; whipstocking.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur. ..... T.D. 2,495 ft.; in Edwards, dry
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio ..... T.D. 1,330 ft.; S.D.

BROOKS COUNTY

Allen & Morris' No. 1 Lasater, NW part of county, 450 ft. to NE line, 7,325 ft. to SE line of 962-ac. tract... T.D. 1,819 ft.; blew out; fishing for drill stem.
Ed East's No. 1 A. Garcia, 600 ft. from N and E lines of 2,168-ac. tract in SW part of county ..... T.D. 85 ft.; set surface csg.
F. G. Stearns' No. 1 Mrs. B. Myrick, 610 ft. W, 150 ft. S of NE cor. of Lot 2, Blk. 2, Falfurrias Farm and Garden tracts 2 miles N of Falfurrias ..... Spudded in.

CALDWELL COUNTY

George Sullivan and Shell Petroleum Corp.'s No. 1 Plinsoil, 2,800 ft. to SW line, 300 ft. to NW line of tract and survey in M. Dennis Sur. ..... Bldg. derrick.
Kistler, Stivers & Hendrick's No. 1 D. Carter, 400 ft. from NW line of Sur., 300 ft. NE of Creek in I. Allen Sur. ..... T.D. 1,485 ft.; standing in chalk
Meyer's No. 1 G. C. and W. Walker, Solomon Seal Sur. .. T.D. 2,545 ft.; abnd.
M. O. Rayor's No. 1 Kruez Bros., 450 ft. N, 150 ft. W of SW cor. of J. P. McCarley Sur. in Samuel Shupe Sur. ..... T.D. 2,352 ft.; drlg.
Taylor Oil Co.'s No. 1 McBride, 12 miles NE Luling ..... T.D. 1,400 ft.; drlg.

COLORADO COUNTY

Coyle-Concord Oil Co.'s No. 1 Stewart Nelson in I.&G.N. Sur. No. 43 ..... T.D. 670 ft.; set surface csg.

DE WITT COUNTY

Pat Armstrong's No. 1 E. T. Clark, 2,000 ft. S of Simms-Republic's No. 1 Clark in Jose Santos Sur.... Moving in.
J. F. Richardson's No. 1 Virginia Taylor, 330 ft. from SE line of tract, 330 ft. NE of Minnehuilla Creek... Location.
The Texas Co.'s No. 1 John McCrabb, 4,000 ft. from SW line, 1,435 ft. from SE line of 794-ac. lease in James Quinn Sur. ..... Location.

DUVAL COUNTY

Aztec Oil & Royalty Co.'s No. 1 Duval County Ranch Co., 750 ft. from E line, 300 ft. from N line of S 160 ac. of Sur. 322 ..... Derrick.
John F. Camp's No. 1 Well, 900 ft. NW and 150 ft. NE of cen. of Sur. No. 570 ..... T.D. 2,438 ft.; abnd. dry.
Frank Gravis et al's No. 2 Schallert, 425 ft. to E line, 150 ft. to S line of Blk. 10, Cain & Smith Subd. "A", Sur. No. 255 ..... T.D. 1,610 ft.; standing.
French Oil Corp.'s No. 1 Flores in Survey 731, 1,000 ft. N, 25 degrees W of Sun Oil Co.'s No. 1 Flores in Survey 730 ..... T.D. 2,009 ft.; abnd. dry.
Jimmy Hicks' No. 1 Peters, SW cor. of most southerly part of Sur. 322 ..... Dropped; to be carried as Aztec Oil & Royalty No. 1 Duval Ranch.
Hynes and Nessly's No. 1 Duval Ranch Co., 200 ft. from S and E lines of Blk. 26, Sur. No. 196 .... T.D. 2,450 ft.; S.D.
O. W. Killam's No. 1 Peters, 150 ft. from E line, 450 ft. from N line of SE of Sur. No. 1 ..... T.D. 2,725 ft.; standing.
Smith & Capps' No. 2 Duval County Ranch Co., 2,040 ft. from NW line, 225 ft. from SW line of Sur. 574.. T.D. 2,395 ft.; comp. 1,000 bbls.
Suttle et al's No. 1 Bennett, 150 ft. from N and E lines of Sur. No. 44 ..... T.D. 2,210 ft.; drlg.
The Texas Company's No. 1 Peters, 150 ft. from N and W lines of Sur. 162 ..... Location.
Trinity Drillers, Inc.'s No. 1 Hagist, 2,892 ft. from W line, 4,400 ft. from S line of Sur. 122 ..... T.D. 1,200 ft.; drlg.

GUADALUPE COUNTY

J. E. Clark's No. 1 R. Drummer, 600 ft. from SE line, 150 ft. from SW line of tract in Francisco Caravajal Sur. No. 47 ..... Location.
Luling Oil & Gas Co.'s No. 1 J. D. Brown, 160 ft. from N line, 450 ft. from E line of tract in C. Wall Sur.... T.D. 2,600 ft; abn.l.
Sal Mar Oil Corp.'s No. 1 F. A. Pfullman, 150 ft. from W line, 1,050 ft. from N line of tract in Lewis Bollinger Sur. ..... T.D. 2,110 ft.; drlg.
Taylor Oil Co.'s No. 1 Pearson, S of Kingsbury..... Spudded in.

GOLIAD COUNTY

Hoffman & Gooch's No. 1 Fromme, 600 ft. from N and 1,200 ft. from W line of Peter B. Dexter Sur. .... T.D. 2,470 ft.; standing.
Humble Oil & Ref. Co.'s No. 1 Fromme, 450 ft. from S line, 150 ft. from W line of lease on Geo. Kersey Sur.. T.D. 1,345 ft.; drlg.
Plymouth Oil Co.'s No. 2 Parks, 400 ft. S of No. 1 Parks in Solomon Parks Sur. ..... T.D. 4,120 ft.; drlg.
Neal et al's No. 1 J. M. Pettus, 10,700 ft. to S line, 2,500 ft. to E line of Pedro Trevino Sur. ..... T.D. 4,565 ft.; standing.

GONZALES COUNTY

Crowder Oil Co.'s No. 1 Preston, 1,000 ft. from W line, 2,000 ft. from N line of W. W. Pace Sur. ..... T.D. 200 ft.; standing.
Edmiston & Kirby Petroleum Co.'s No. 1 J. W. Ward, Jr., 200 ft. from N and W lines of tract in Dan McKay Sur. ..... T.D. 1,529 ft.; S.D
Johnson & Mattock's No. 1 J. James, 12 miles NE of Gonzales city, 900 varas from E line, 300 ft. from S line of tract in M. A. Williams Sur. ..... T.D. 1,600 ft.; drlg.
Nassamer, Gordon & Waldrop's No. 1 B. Botts, 2,500 ft. from E line, 650 ft. from S line in Sec. 6, Blk. 56, Gonzales Sur. ..... T.D 950 ft.; standing.

HIDALGO COUNTY

Barrett-Kanellos' No. 1 J. B. Brock, 7 miles W and N from Mission (on Monte Cristo road) ..... TD. 4,360 ft.; drlg.
San Roman Oil Co.'s No. 1 J. T. Lomax, 7,500 ft. from S and E lines of San Roman Sur. ..... T.D. 2,500 ft.; S.D.
Dayle L. Smith's No. 3 Daskam, SW part of county..... T.D. 1,510 ft.; no report.

JIM HOGG COUNTY

Borah, Allen & Co.'s No. 1 E. Guerra, 150 ft. to S and W lines of Blk. 6, Sur. 86 ..... T.D. 1,350 ft.; drlg.
Clark & Cowden's No. 1 E. Vela, Share 1 El Peyote grant. Rigging up.
D. C. DeWitt's No. 1 Gomez, 1,170 ft. from N line, 150 ft. from W line of Sur. No. 12, SW part of county .. T.D. 1,280 ft.; drlg.
Duval Oil Co.'s No. 1 W. W. Jones, 1,020 ft. from S and W lines of 160-ac. tract in Holden Subd. of Share 5-A in San Diego Hinajosa grant ..... Location.
T. P. Morgan's No. 1 fee, 2,223 ft. to N line, 1,640 ft. to E line of Share 19, Palo Blanco grant ..... T.D. 4,207 ft.; standing

JIM WELLS COUNTY

F. A. Lain's No. 1 Vernon Porter, 800 ft. from S line, 400 ft. from W line of 200-ac. tract in Sur. 25 ..... Set surface csg.
S. J. Sloane's No. 1 W. Wade, 150 ft. SW of cen. of NE line of Lot 6, Blk. C of Wade ranch, C. Blanca Sur... Spudded in.
Vacuum Oil Co.'s No. 1 Seeligson, 4,500 ft. to W line, 75,000 ft. to S line of Los Jaboncillos Sur. ..... T.D. 6,010 ft.; abnd.

KARNES COUNTY

A. E. Edmiston's No. 1 O. L. Cochran, 150 ft. from S line, 500 ft. from E line of farm in D. B. McConnell Sur. ..... T.D. 1,820 ft.; standing
Nichols Oil Co.'s No. 1 Newberry, 210 ft. S, 60 de. E from Fort Bend Oil Co.'s No. 1 Newberry ..... T.D. 3,300 ft.; S.D.
Pickett et al's No. 1 D. E. Lyons in Victor Blanco Sur.... Spudded in.

KENDALL COUNTY

Fred S. Dibble's No. 1 Ellenbrach, Sur. 77, N part of county ..... T.D. 50 ft.; temp. abnd.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T.D. 2,708 ft.; temp. abnd.

KERR COUNTY

Geo. Ball's No. 1 F. A. Karger, 3 miles N of Kerville.. Dropped till work starts.
Eastland Oil Co.'s No. 1 Love, 600 ft. E of No. 1 Love in J. Martinez Sur. No. 1,594 ..... Moving in rig. First reported as Evans & Gant's No. 3 Love.
Evans & Gant's No. 1 E. Young, A. E. Burg Sur. 28.... T.D. 1,312 ft.; standing
Verde O. & G. Co.'s No. 1 J. D. Witt, 1,320 ft. from N line, 1,220 ft. from W line of Sec. 1,923, Hamilton Sur., 4 miles from Center Point; T.D. 200 ft; carried to this depth and abandoned as Herber Oil Co.'s No. 1 J. D. Witt ..... T.D. 110 ft.; standing.

KLEBERG COUNTY

H. Carter et al's No. 1 R. H. Simmons, in Sec. 7, King Sur. No. 3 ..... T.D. 3,205 ft.; standing.

LIVE OAK COUNTY

Catlett & O'Neill's No. 1 H. D. Miller, 2,400 ft. from SW line, 6,125 ft. from NW line of Miller ranch in SE part of county ..... Laying line from gas well.
J. A. Harper's No. 1 fee, 2,130 ft. to N line, 510 ft. to E line of farm, J. Pointevant Sur. 37 ..... Spudded in and standing
Henderson Coquat's No. 1 Hewitt, 250 ft. from N and E lines of SW of Sec. 5, Thomas Adams Sur. ..... T.D. 1,785 ft.; abnd.

LEE COUNTY

Washington-Lee Oil Co.'s No. 1 Hicket, 1,100 ft. from N line, 200 ft. from E line of tract in J. D. Varreiman Sur. ..... T.D. 1,560 ft.; S.D.

MEDINA COUNTY

Robertson Drilling Co.'s No. 1 Little, 2,350 ft. from N line, 1,500 ft. from E line of E. B. Rutledge Sur., southern part of county ..... Spudded in.

MILAM COUNTY

Birdwell et al's No. 1 E. and J. S. Williams, 150 ft. from N and E lines of 46-ac. tr. in Samuel P. Carson Sur., 5 miles SW of Rockdale ..... T.D. 3,600 ft.; set csg
H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tr. in B. Wickson Sur. ..... T.D. 3,000 ft.; S.D.
Keyser & Roberts' No. 3 Ward, 125 ft. NE of No. 2 Ward, in Levi Taylor Sur. ..... Location.
Keyser & Nichols' No. 1 Irwin, 450 ft. from NW line, 150 ft. from NE line of 126-ac. tract in Levi Taylor Sur. ..... Location.
Michalk & Clark's No. 1 Johnson, 60 ft. S of No. 1 Johnson on 100-ac. lease in Juan Jose Acosta Sur. .. Location.

NUECES COUNTY

C. E. McCarthy's No. 1, W of Corpus Christi ..... Making location.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW, Sec. 175 ..... T.D. 2,530 ft.; standing

SAN PATRICIO COUNTY

John F. Camp's No. 1 Jackson, SW cor. SW, Sec. 30, 3 miles from Edroy ..... T.D. 5,507 ft.; S.D.; contract depth.

STARR COUNTY

Coastal O. & G. Co.'s No. 1 Kelsey-Bass, 448 ft. to N line, 150 ft. to W line of Tract 52, Sur. 2, Porcion 86.. T.D. 500 ft.; drlg.
Davenport et al's No. 1 Wells, 30 miles W of Mission .. T.D. 1,093 ft.; csg. stuck
O. W. Killam's No. 1 Wood, south end Porcion 84, SE of Rio Grande City ..... T.D. 2,010 ft.; drlg.
Frank LaBorde's No. 1 Juan Marroquin, 1,250 ft. from E line, 1,225 ft. from S line of Share 21 of W two-thirds of Porcion 75 ..... T.D. 350 ft.; drlg.
Sinclair & Rutherford's No. 1 J. T. Canales, 150 ft. from S and W lines of Share 69 of W half of Porcion 79, Camargo ..... Location.
Stryalls Oil Corp.'s No. 1 M. E. Salinas, 155 ft. from N and W lines of lease in Porcion 80, Share 38 .... T.D. 1,968 ft.; drlg.
Strayhorn Oil Co.'s No. 1 Caffarelli, Porcion 80 ..... Location.
R. B. Suttle's No. 1 Guerra, 2,000 ft. to N line, 270 ft. to W line of Porcion 110 ..... T.D. 810 ft.; no report
Jack Tarver's No. 1 Guerra, NE of Rio Grande City .... T.D. 1,010 ft.; drlg.
E. L. Williams' No. 1 L. G. Madrigal, 150 ft. from N and W lines of Share 5-A of Porcion 72 of Jurisdiction of Mier ..... T.D. 1,170 ft.; drlg.
Jess Williams' No. 1 Welch, 1,120 ft. to W line, 1,500 ft. to N line of tr. in Pedernal grant ..... T.D. 840 ft.; drlg.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. ..... T.D. 1,210 ft.; S.D
Fritz Fuchs' No. 1 Swedish, 2,350 ft. from NE line, 750 ft. from NW line of Thomas Smith Sur. ..... T.D. 900 ft.; S.D.
Ray & Henze's No. 1 Hatech, in C of tr. in S. Hamilton Sur. ..... T.D. 900 ft.; S.D.
Ray & Orth's No. 1 Lundgren, 550 ft. from N line, 150 ft. from W line of 133-ac. tr. in L. Kimbro Sur. .... Spudded in and S.D.

WEBB COUNTY

McGinley Corp.'s No. 1 A. C. Billings, 450 ft. from N line, 150 ft. from W line of SW NE Sur. No. 71 .... Rigging up.
Phillips Rosenberg's No. 2 Laurel, 150 ft. from N and W lines of Blk. 8, Sur. 271 ..... T.D. 1,800 ft.; drlg.

WILLIAMSON COUNTY

McLean et al's No. 2 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tr. in B. Manlove Sur. ..... Rigging up.
McNeill & Matthews' No. 1 Bachmayer, 300 ft. from E line, 150 ft. from S line of C. C. Browning Sur. ... Location.
G. B. Peterman's No. 1 Guentzel, 300 ft. from SE line, 867 ft. from SW line of tract in H. Cooks Sur. ..... Location.
G. L. Rowsey's No. 1 Streit, 450 ft. from SW line, 150 ft. from NW line of tract in J. West Sur. ..... Location.

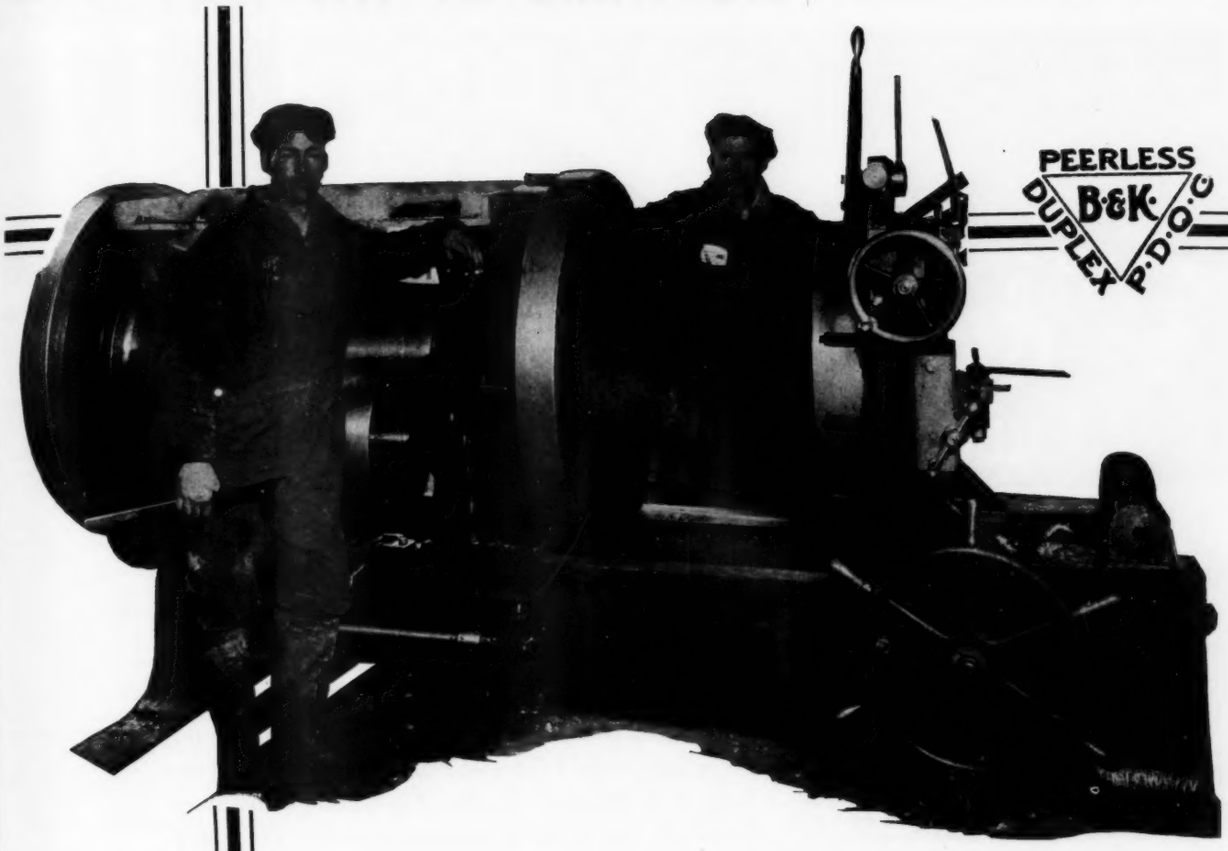
WILSON COUNTY

A. M. Blume's No. 1-A Nicholson, 105 ft. N, 27 deg. E of No. 1 Johnson ..... Location.

ZAPATA COUNTY

Ballard & Mercer's No. 1 Flores, 500 ft. from NE line, 580 ft. from SE line of Blk. 27, Porcion 37 ..... T.D. 2,497 ft.; set csg.
George Ball's No. 1 Gutierrez, in Charco Redondo grant, taken over from Moore et al to deepen ..... T.D. 2,065 ft.; dropped till work is resumed.
Joe Cullinan's No. 1 E. Gutierrez, 1,992 ft. from NE line, 2,303 ft. from SE line of Charco de la India grant ..... T.D. 40 ft.; set surface csg.
Hunt & Polk's No. 1 H. Ramirez, 7,075 ft. N of S cor. and 2,918 ft. from W line of Share A of Villa grant.. T.D. 330 ft.; drlg.
O. W. Killam's No. 1 Barrocito Ranch in J. V. Borrego Sur. ..... T.D. 2,731 ft.; drlg.
McGinley Corp.'s No. 1 G. G. Flores, 750 ft. SW of E cor. and 150 ft. from SE line of Sur. 242 but in Sur. No. 250 ..... T.D. 500 ft.; drlg.
T. J. Murray's No. 1 Haynes, 2,915 ft. from NE line, 8,619 ft. from NW line of Comitas grant ..... Location.
Thompkins et al's No. 1 Ortiz, 200 ft. from E line, 2,000 ft. from N line of Sur. No. 1,808 ..... T.D. 100 ft.; drlg.

Leakproof threads under all conditions!



PEERLESS B&K DUPLEX P·D·Q·C

THERE is a decided preference among practical, experienced men for Bignall & Keeler Threading Machines. In the shop or out in the open field they stand up and take the punishment. They grind out accurate, finished work at a pace that means profits. Simple and foolproof—even an unskilled man can turn out excellent work with B & K machines. Many of them have been on the job for 20 years or more and are still doing perfect work. The Peerless dies reduce friction, and produce at one pass, the clean-cut, long-tapered threads that mean tight joints.

Let us send you our catalog. One of the 17 different types of B & K machines is certain to fit your needs.

Bignall & Keeler Machine Works

of the N. O. Nelson Mfg. Co.

EDWARDSVILLE, ILLINOIS

OGJ 5-19 Gray

FOR THAT LAST BIG THIRD OF THE WAY

1. **A BALANCED UNIT.** By utilizing weight of rods below Booster Pump to displace fluid on downward stroke, rods are always under tension, as in upward stroke. Shock-absorbing result makes pump a well-balanced unit.

2. **INCREASES LIFE OF RODS.** Continuous stretching and contracting of rods, which cause practically all rod troubles, have been reduced to a minimum by keeping rods under constant tension on both downward and upward strokes.

3. **INCREASES PRODUCTION.** Downward stroke, as well as upward stroke, lifts the oil. Rod tension on downward stroke acts as shock absorber, avoiding quick load stress at reversal of stroke. Length of travel of plunger in barrel is increased due to the decrease of fluid weight on rods, thus with the same stroke per minute more oil is produced.

4. **INCREASES LIFE OF TUBING.** Booster Pump provides tubing anchorage near center of string, reducing weaving motion and resultant wear. Constant rod tension also saves wear.

5. **REDUCES WEIGHT OF WELL.** Fluid is passed to casing above Booster Pump, relieving rods of this fluid weight, which is approximately 1½ pounds per foot in 2½" tubing.

6. **REDUCES POWER CONSUMPTION.** By using the weight of rods to lift the oil and by increasing the life of rods and tubing, which decreases shutdown time, and by using lighter counter weights, power bills have been reduced 30% to 60% over the ordinary method of pumping.

"Better Be Safe Than Sorry"
THE GUIBERSON CORP.
Box 1106, Dallas, Texas
California Branch: 1304 Security Title Ins. Bldg. Los Angeles
504 Wright Bldg. Tulsa
First and Locust Sts. Newark, O

THE GUIBERSON BOOSTER PUMP

The swarm of African natives or Chinese coolies that bring merchandise to the ships like an endless chain, would exhaust even their renowned energy if it were not for the ship's cranes and huge hoisting nets, to hoist heavy cargo over the towering side and into the hold. The Guiberson Booster Pump takes just that much of a load off your rods and pumping machinery.

The Guiberson Booster Pump is stationed one-third of the way down from the surface. It acts as an auxiliary working barrel, taking the oil delivered to it by the regular working barrel, passing it to the casing and speeding it to the surface. By means of the Guiberson Booster Pump, more oil is lifted at the same stroke per minute and a deep well is made into a shallow well, for pumping. Note the many features for profit and saving.

GUIBERSON
BETTER BE SAFE THAN SORRY

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

TOO MUCH OIL, HE BELIEVES

I receive The Oil and Gas Journal every week and I often read that there is not too much oil in America. Well, if there is not too much oil, how is it that having an interest in a well that had an initial production of 58,000 bbls. daily we can sell only 65 bbls.? Does not that prove that there is too much oil? And still you say that stocks underground and above ground are being depleted and if new reserves are not found there may be a period of shortage.—P. G., Paris, France.

It is inferred that your well is in the East Texas Pool. This department has yet to find anybody who would maintain that any well in that area has a capacity of 58,000 bbls. a day.

There are things in nature that would produce tremendous power if harnessed. The sun for instance has almost unlimited power to produce heat, but to make that power effective for mankind is a problem that has had the thought of many men for years and still is not an economical possibility.

So it is with oil fields. New wells are estimated in various ways to have certain "initial production" but to produce the oil from the pool so that everyone having interests there will get an equitable share of the oil and gas presents many problems. Every field is limited as to its rate of production by natural causes and while one or more wells might produce much more oil than they are allowed to produce under proration it would not be fair to others and would cause losses to many for the gain of a few.

One East Texas well was permitted to produce recently for 11 hours at the rate of 150 bbls. per hour and at the end of the test period an offset, or adjacent, well would not produce at all. This was due to the fact that by producing the first well at high rate of flow the neighboring sand area was drained of its energy and the offset wells were rendered useless.

It is not regarded as fair to permit any operator or group of operators to drain a field by open flow to the loss of other operators who have invested money in the same pool but do not have the facilities to enter into competitive production to protect their interests. If no regard is given to the rate of production in the semiflush fields it is known that many wells will be ruined and much of the so-called "potential production" made impossible of recovery.

All fields have water adjacent to the oil in the producing horizon and if the rate of its movement is not controlled by withdrawal of the oil under restricted rates this water will channel to the well ahead of the oil and thus ruin much oil and make it impossible ever to recover it.

This country has not been discovering and developing new pools as fast as it has been withdrawing oil from those now opened. There is a demand each year for nearly a billion barrels of oil and if that amount of oil is withdrawn from the now existing pools the only way to replace this reserve is to discover at least 10 pools per year of the magnitude of 100,000,000 bbls. capacity each. This we have not done.

It is now estimated that our reserve supply of oil is equal to 10 years' needs, but on the other hand it is admitted that it will require about 30 years safely to withdraw this oil from the ground because of natural limits placed upon the rate at which withdrawal can take place.

If the natural limits are disregarded then a large portion of the estimated 10 years' supply will be totally destroyed or left in the ground, only to be recovered at great expense. So you will see there are two alternatives: Observe the limits in rate of withdrawal placed by natural conditions in every field and thus get the ultimate amount of oil; or disregard those limits in rate of withdrawal, depleted the supply in a very short time and then face the problem of finding more oil.

The assumption that it is a simple matter to find new pools is not borne out by facts. If you have been studying various articles in The Oil and Gas Journal you must have noted that the discovery of new pools within the past two years has been limited. In fact the actual drilling of wells for the purpose of finding oil has fallen far below the normal number. In 1931 there were only 6,703 oil wells completed in the United States as compared with an average of over 15,000 oil wells completed during the past 10 years. See table on page 15 of The Oil and Gas Journal, January 28, 1932.

To get a true picture it must be remembered that oil cannot be reproduced and exists in this country in only a limited quantity. Whether the supply be good for 10, 12 or 15 years is immaterial. This country is the greatest consumer of petroleum products. To deplete its only supply in a reckless manner and then be compelled to rely upon foreign oil or petroleum products would be foolish.

It is hardly fair to judge the ability of our pools to produce more oil than they are now delivering upon the information you have at hand that the well in which you are interested had an initial of 58,000 bbls., and is producing now only 65 bbls. At the 65-bbl. rate this well is making a gross earning of about $47.60 per day for its owners and should be paying the royalty owners about $8.33. This is a lot better than producing the well wide open and selling the oil for 10 cents a barrel as they were doing a year ago with no one making any money out of the transaction and the royalty owners receiving virtually nothing.

SCIENTIFIC TRAINING NEEDFUL?

I read your statement in a recent issue of The Oil and Gas Journal that the magnetometer and other geophysical instruments must be operated by men of scientific training. I have been much interested in this field of work and have thought of trying to get into it. I have been through high school and plan to take some night courses no matter what vocation I take up. Would it be possible for me to equip myself for geophysical work without going to college?—A. N. T.

Probably no better answer could be given to your question than is found in Dr. C. A. Heiland's introduction to his work on "Geophysical Methods of Prospecting." Doctor Heiland, who is professor of geophysics in the Colorado School of Mines, says:

"In geophysical prospecting we use to a very large extent instruments and methods which are either the same as or similar to those employed in the various branches of pure geophysics and developed by science for more than 50 years. It therefore is not possible to become thoroughly acquainted with this subject without having a good knowledge of mathematics, physics and primarily geology, and without having studied the methods of pure geophysics for some time. Emphasis is being placed upon this fact to meet a frequent misunderstanding of the subject on the part of men who ask for brief directions for constructing a 'pendulum' or 'radio set' for 'treasure finding' and information of a similar character. Despite the fact that the methods of geophysical prospecting are very similar to those used in pure geophysics and consequently have had a great deal of development, no instrument or method has been designed to date which will work so fully automatically as to tell the observer immediately which deposit exists below the surface, where and how large it is, etc. This is impossible and probably always will be.

"No geophysical method locates a particular deposit. All that is obtained are physical effects which must be interpreted in terms of geology. This may be done only by someone who, first, understands the theory of the effect of subterranean unconformities upon the various methods and who, second, knows the local geologic conditions well enough not to assume subsurface structures that might theoretically cause the observed effects, which in actuality may be totally impossible from the geologic standpoint.

"Geophysical prospecting will therefore always be a useful tool in the hands of a well-trained scientist or engineer only. There are other fields of science of course, like radio engineering for instance, which have been so developed as to allow any layman to operate; but there is some doubt if geophysical prospecting will ever reach this point. Anyone may be trained to operate a geophysical instrument, of course, just as anybody can be taught to drive a car, but nobody will be able to do anything with the observed effects unless he understands the theory of subterranean effects and appreciates the geologic possibilities. This is a marked difference between geophysical prospecting and 'divining rods,' 'witchsticks' or 'doodlebugs.'"

WHY WAS IT CALLED THAT?

LAME DUCK

Persons whose oil interest lies in the direction of the stock ticker rather than among the derricks may be interested in the fact that in the early part of the nineteenth century a lame duck was not a legislator who had failed of reelection, as he is now, but he was a man who had received a trimming in the stock market. Just as "Wall Street" today is symbolic of the New York Stock Exchange and its allied institutions, so "Exchange Alley" once referred to London's speculative community. Captain Francis Grose's "Dictionary of Buckish Slang, University Wit and Pickpocket Eloquence," printed in London in 1811, says that "lame duck" was the designation applied to a speculator who was unable to put up additional margin called for and so had to waddle out of Exchange Alley. "Bull" and "bear" had the same meanings they have now.

PRODUCTION AND COSTS

Can you approximate the number of wells drilled in this country since the oil industry began over 70 years ago and the number that are still producing oil? I would like to know too about how many wells are being drilled each year now and approximately their cost. If you can tell me about what the initial production of wells drilled now is I would appreciate it. Are we approaching the end of our oil resources?—F. R. E.

More than 800,000 wells have been drilled in the United States since the Drake well discovered oil, according to figures presented to the American Petroleum Institute at its November meeting in 1931 by E. B. Reeser, then president of the institute. Of these, Mr. Reeser said, approximately 470,000 permanently have been abandoned.

"Of the roundly 330,000 producing oil wells left, 250,000 have an output of less than 5 bbls. each per day," he continued. "There are perhaps 50,000 additional wells which produce between 5 and 10 bbls. each daily, leaving some 30,000 prolific new wells to supply the bulk of a growing demand.

"We drill on an average 24,195 wells annually at a cost of around $600,000,000, not including the expenditures for leases, pipe lines, equipment, storage facilities, etc. Some 2,400 of these are gas wells and 6,500 are dry holes productive of nothing but expense. Many of these new wells have large initial production, but on the average, within 18 months they fall into the 10-bbl. per day class.

"Production from newly drilled wells with large initial output flowing freely, naturally costs far less than that from the older and smaller wells, which must be encouraged at some expense to yield their oil. Thus in 1930 the initial production was approximately 10,000,000 bbls., or about 855 bbls. per well per day, a new high record.

"It is unreasonable to expect that the phenomenal success we have had in the past few years in finding and developing enormously prolific new producing areas can continue indefinitely. Each year we write off the book of known petroleum resources just so many more areas which either have yielded their supply of oil or proved themselves barren. The producing acreage definitely is limited and, unlike that supplying crop products, cannot be increased. It is only a matter of time until the small wells will be needed to aid in meeting demand. Yet we are jeopardizing not only the productivity of these small wells by forcing their abandonment through cheap production from flush wells, but also the tremendous oil reserves which some time may be required for the preservation of the nation itself."

Personal Paragraphs About Oil Men

John P. Roberts has moved from Eureka, Kans., to Fort Smith, Ark.

* * *

Jon Long, Petroleum Equipment Company, Fort Worth, Tex., spent a few days in Tulsa calling on the trade.

* * *

Ray Braybrook has returned to Petrolia, Ontario, after spending the past three years with the International Petroleum Company, at Negritos, Peru.

* * *

R. S. Montgomery and J. S. Wallace of the Richfield Oil Company were recently elected vice president and secretary-treasurer, respectively, of the Universal Consolidated Oil Company.

* * *

J. M. Charlton, in the land department of the California Company, has been transferred from Dallas to San Antonio, Tex., and will be in charge of the latter district for that company.

* * *

G. E. Ferguson, formerly with the Continental Oil Company at Parco, Wyo., has been made assistant general credit manager for the company in Kansas and northern Oklahoma, with headquarters in Wichita, Kans.

* * *

Albert O. Pegg, superintending marine engineer of the Union Oil Company of California, has been elected chairman of the board of the Bilge Club, an organization consisting of mariners and others affiliated with the shipping business.

* * *

L. B. Tannehill, president of the Tannehill Oil Company, at Los Angeles, Calif., was a visitor to Fort Worth, Tex., recently on his way to Southwest Texas. Mr. Tannehill brought in the Tannehill Pool, near Albany, Tex.

* * *

T. S. Lamont, of J. P. Morgan & Company, son of Thomas W. Lamont of that firm, has been elected a member of the executive committee of the Continental Oil Company. He has been a director of the company for some time.

* * *

David L. Frawley, of Pittsburgh, Pa., a new vice president and director of Barnsdall Corporation, has come to Tulsa to take charge of the financial division of the organization. He is a native of Woods County, in western Oklahoma.

* * *

George O'Connor, Burrel Davis, H. L. Gard and C. A. Mulligan, American oil field engineers, have arrived in London and will proceed to Iraq in connection with the construction of the pipe line for the Iraq Petroleum Company, Ltd.

* * *

W. D. Mason, superintendent of the Sun Oil Company's refinery at Marcus Hook, recently completed a survey of refineries and oil loading facilities in southern California and departed for San Francisco where, as a delegate, he will attend the convention of the United States Chamber of Commerce, to be held March 16 to 20, inclusive.

* * *

H. P. Rue, superintending engineer, and H. M. Thorne, assistant refining engineer, both of the U. S. Bureau of Mines at Laramie, Wyo., and R. H. Espach, assistant refining engineer of the bureau with headquarters at Bartlesville, Okla., were in Casper, Wyo., conferring with representatives of the mineral leasing division of the U. S. Geological Survey.

* * *

Ross Gwilliam, counsel for the Ohio Oil Company in the Rocky Mountain division, with offices at Casper, Wyo., has been transferred to Tulsa where he is to be counsel for the Mid-Kansas Oil & Gas Company, subsidiary of the Ohio company in the Mid-Continent. Mr. Gwilliam will take the place of A. M. Gee, who succeeded the late Merle N. Poe as general counsel for the Ohio company at the home offices in Findlay, Ohio. Wendel Stevens of Denver, Colo., is to go to Casper as counsel for the company there.

Henry A. Ley, formerly of Tulsa, is now located in Pittsburgh, Pa.

* * *

Howard F. Nash has returned from Bandoeng, Java, and is located at Polson, Mont.

* * *

J. P. Dobbins is now representing Strong, Carlisle & Hammond Company, of Cleveland, Ohio. He will continue to make his headquarters in Tulsa.

* * *

Harvey S. Price, president and managing director of East Crest Oil Company, recently completed a motor trip from Toronto to Calgary, Alberta.

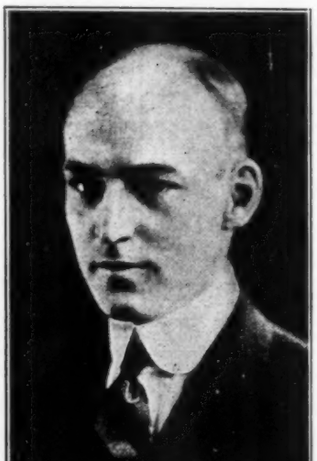
* * *

H. R. R. Williams, for the past 11 years associated with the McColl-Frontenac Oil Company, has been appointed Toronto, Ontario, city sales manager for the company.

* * *

B. W. Vinson Company, Inc., has succeeded the firm of Vinson & Canter and will continue handling refinery and gasoline plant equipment at the same address, Wright Building, Tulsa.

Men of the Industry



George E. Whitwell

George E. Whitwell, vice president in charge of sales of the Philadelphia Electric Company, Philadelphia, Pa., has been an active worker for years in the American Gas Association. Born in Washington, D. C., Mr. Whitwell attended school in that city and in 1915 graduated from the Massachusetts School of Technology. When this country entered the World War he was a research engineer for the Anaconda Copper Company in Butte, Mont., and he resigned to enter the photographic section of the Aviation Corps, United States Army.

After the war Mr. Whitwell was an instructor in the University of Washington, Seattle, for three years, at the same time serving as consulting engineer of the Tacoma Gas & Fuel Company. With D. J. Young, manager of the company, he perfected a back-run carburettted gas process for use by manufactured gas concerns. In 1924 he was made general superintendent and new business manager of the Tacoma Gas company. Two years later he became general manager of the Equitable Gas Company, Pittsburgh, Pa. In 1927 he was named general sales manager of the Philadelphia company, Pittsburgh, later becoming vice president in charge of sales. He was filling that office when he was elected to his present position in the Philadelphia Electric Company in February, 1931.

S. D. McIlroy, president of Dixon Creek Oil Company of Amarillo, Tex., was a visitor in Tulsa last week.

* * *

G. H. McCann has been appointed acting chief engineer of the Anglo-Persian Oil Company in Persia.

* * *

E. J. Sullivan, president of the E. T. Williams Oil Company, Casper, Wyo., is in Washington, D. C., on business.

* * *

Sidney H. Keoughan has returned to his headquarters at Casper, Wyo., from a business trip to the East.

* * *

C. F. Kimball, formerly scout in the Oklahoma City area for the Sinclair Prairie Oil Company, with Mrs. Kimball, has gone to his old home at Sistersville, W. Va., to reside.

* * *

Frank C. Greene, consulting geologist of Tulsa, has temporarily joined the Missouri Bureau of Geology and Mines, to revise a report on the coal measures of that State which he made in 1913.

* * *

C. Max Bauer, petroleum geologist, formerly of Okmulgee, Okla., and then of Amarillo, Tex., and now instructor of geology at University of Colorado, has been appointed naturalist at Yellowstone National Park.

* * *

O. H. Muller, Jr., and E. G. Starr were re-elected president and vice president, respectively, of the Universal Consolidated Oil Company at the regular annual meeting held in Los Angeles, Calif., during the past week.

* * *

R. R. Templeton, vice president, and C. R. McCollom, chief geologist, have resigned their respective positions with the Pacific Western Oil Company, to enter the independent consulting field, specializing particularly in geological surveys and advanced production methods.

* * *

J. C. Maxwell, of Fort Worth, Tex., one of the discoverers of production in Crane County of the West Texas Permian Basin, was elected to the board of directors of the Texas Pacific Coal & Oil Company at the annual meeting at Thurber. He succeeds Robert C. Ream of New York.

* * *

Walter L. Barnes, who has for several years been assistant to Don Emerly, head of the legal department of the Phillips Petroleum Company in the Texas division, has been placed in charge of the legal department of a division of the company either at Minneapolis, Minn., or Des Moines, Iowa.

* * *

J. H. Jenkins, vice president of the Associated Oil Company, in charge of land, geological, production and engineering departments at Los Angeles, Calif., visited the Tidal Oil Company offices in Fort Worth, Tex., where he was formerly in charge before being transferred to California.

* * *

G. R. Henson of Tulsa has been made chief exploitation engineer of the Shell Petroleum Corporation, and transferred to St. Louis, Mo. He has been with the Shell since 1918. He is succeeded by W. H. Morrison, formerly district engineer at Seminole and Oklahoma City, as division exploitation engineer with headquarters in Tulsa.

* * *

Ben E. Lindsly, senior petroleum engineer, U. S. Bureau of Mines experiment station, Bartlesville, Okla., and H. C. Miller, petroleum engineer with the Bureau of Mines in California are on a trip through the East Texas oil fields for the purpose of making a general survey of operating conditions there and taking bottom hole pressure samples of oil and gas. C. E. Reistle, Jr., of the Bartlesville station will also make a trip to the East Texas Field soon to work on his investigation pertaining to bottom hole pressures and temperatures.

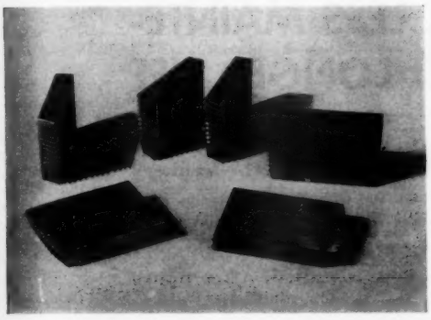
INSTANT DIE CHANGE ON ALL SIZES—

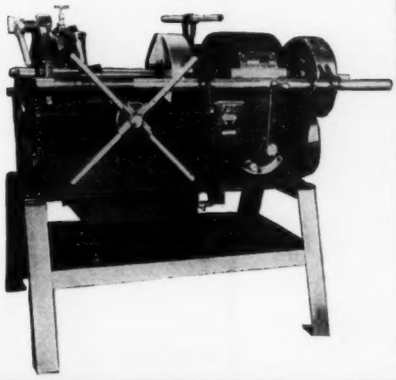
—within the capacity of the "TOLEDO" No. 1-2-4 1" to 4" Power Pipe Machine.

Separate quick opening die head for each size. Dies made of high-speed steel and can be reground many times. No backing off, dies are released instantly after completing the thread.

Machine is rigid and strong. All steel construction. All controls in easy reach of right hand. One gear and clutch shifter lever controls all six spindle speeds. Multiple disc clutch. Automatic lubrication. Cutter head of special design with four blades cutting simultaneously cuts pipe off very rapidly. 4" pipe is cut off in 9 seconds, threaded in 42 seconds. Smaller sizes correspondingly fast. Entire mechanism protected by friction gear that slips in case of overload.

Truly the pipe machine value of 1932. Prices and complete information on request.





THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

NEW YORK OFFICE, 72 LAFAYETTE ST.

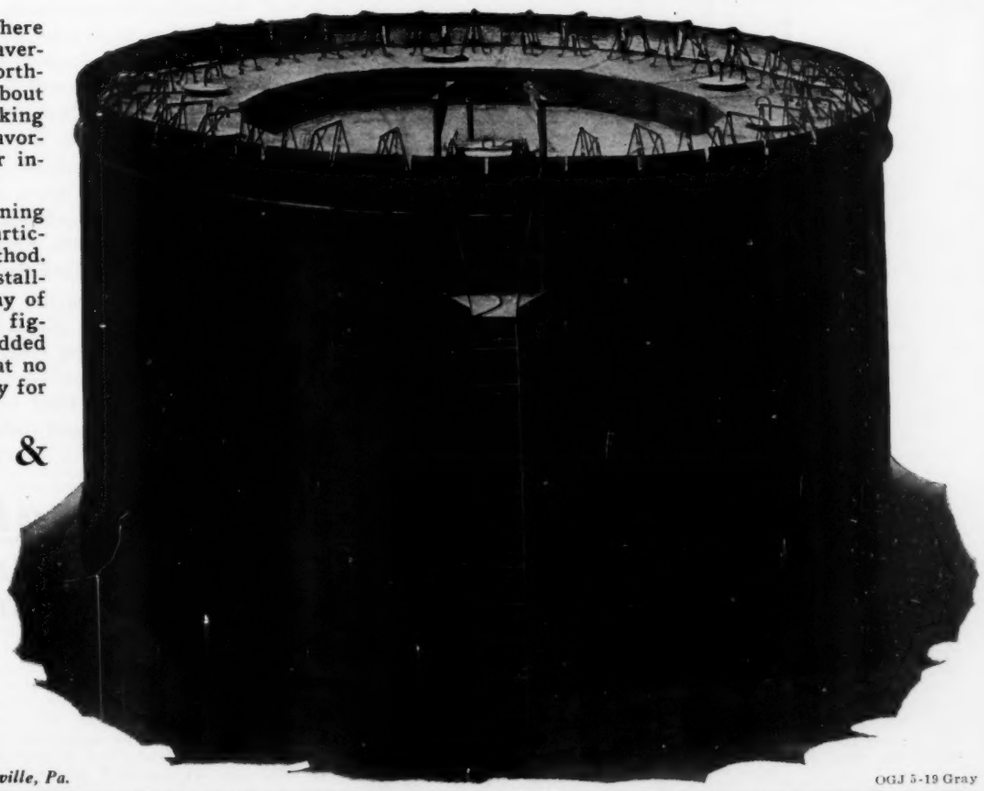
"TOLEDO"

UNUSUAL PRODUCTION

STOP EVAPORATION AND FIRE LOSSES *with* WIGGINS ROOFS

EVERY ordinary tank roof is a place where you lose valuable oil vapor. Even for average motor gasoline in standing storage in northern states this annual loss amounts to about 2½% of the volume in the tank. In working tanks it is of course greater and under unfavorable conditions the rate of loss is further increased.

The exact amount of loss you are sustaining can now be readily determined for any particular tank with the new vapor pressure method. And whatever it is it can be stopped by installing a Wiggins Pontoon Roof. The economy of this roof is apparent when you see actual figures for savings in individual cases. The added fire protection which it affords is gained at no cost for the evaporation savings quickly pay for the roof.



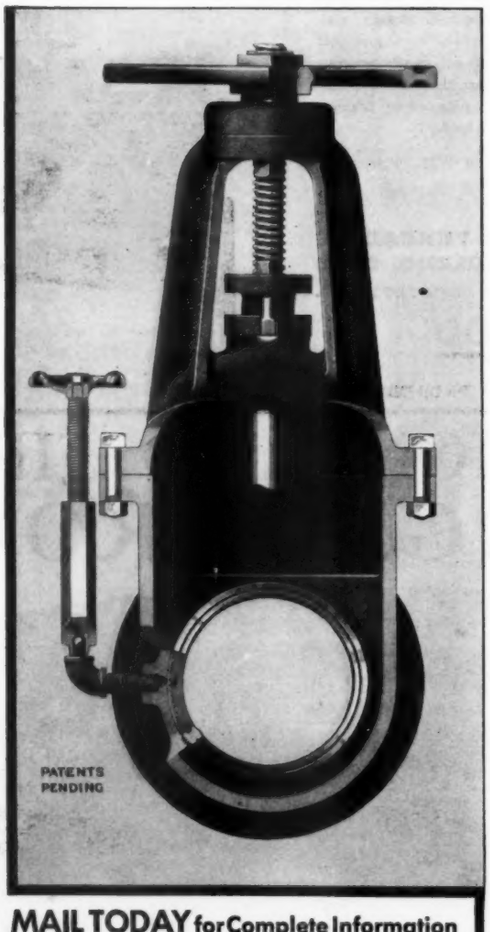
CHICAGO BRIDGE & IRON WORKS

DALLAS	1241 Burt Bldg.
HOUSTON	1119 Electric Bldg.
TULSA	1406 Philcade Bldg.
BIRMINGHAM	1536 Fiftieth St., N.
CHICAGO	2128 Old Colony Bldg.
DETROIT	1514 Lafayette Bldg.
CLEVELAND	2204 Midland Bldg.
NEW YORK	3147 Hudson Terminal Bldg.
PHILADELPHIA	2615 "1616" Walnut St. Bldg.
BOSTON	1517 Consolidated Gas Bldg.
SAN FRANCISCO	1054 Rialto Bldg.
SEATTLE	4323 Smith Tower
LOS ANGELES	1323 Pacific Mutual Bldg.
HAVANA, CUBA	Apartado 2507

Fabricating plants in Birmingham, Chicago and Greenville, Pa.

OGJ 5-19 Gray

NEW LUBRICATING FEATURE BIGGEST IMPROVEMENT IN TWENTY-FIVE YEARS



TIGHTER SEATING, EASIER OPERATION, LESS MAINTENANCE AND LONGER LIFE

This new principle in gate valves was originally developed for one of the large refineries. This refinery had tried gate valves of many different makes, but found that ordinary valves would last but a few weeks. After a short time, however, leaks would develop.

Lubrotite Gate Valves were installed. After many months of service under the hardest possible operating conditions, these valves today are performing as well as the day they were put into service.

In the Reading-Pratt & Cady Lubrotite Gate Valves, a lubricant is introduced under pressure between the disc and seats. This thin film of special lubricant protects the seats and the valve stays tight so long as the melting point of the lubricant-seal is not exceeded.

Where foreign materials scratch the seats and cause the ordinary gate valve to leak, the Lubrotite Lubricant seals such leaks and prevents them from becoming larger. Where line conditions are such that it is necessary to take the ordinary valve apart in order to clean the seating surfaces, Lubrotite Valves remain tight.

Lubrotite Gate Valves open easier. Sticking is prevented by screwing down the lubricating guns a turn or two as the valve is being closed. Also, a turn of the guns will free a valve which has become stuck after being closed for a long time.

The Lubrotite feature is available in several Reading-Pratt & Cady Gate Valves. Tell us what your operating conditions are. Our engineers are at your service. The coupon at the left is provided for your convenience—fill in and mail today.

ACCO

An Associate Company of the American Chain Company, Inc.

MAIL TODAY for Complete Information

READING-PRATT & CADY CO., *Inc.*
Bridgeport, Conn.

Please send by return mail, without any obligation whatever, complete facts about "Lubrotite" Gate Valves.

Company.....

Address.....

Name and Position.....

.....

Lubrotite

IRON & STEEL GATE VALVES

MADE BY **READING-PRATT & CADY, *Inc.***

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

FERTILIZER CHEMICALS FROM NATURAL GAS

Some natural gas contains considerable percentages of nitrogen and I would like to know if such gas could be used for manufacturing ammonia compounds and other materials which are in demand for making fertilizers?—J. R. C.

There is a plant in California operated by the Shell Chemical Co. which treats a mixture of air and natural gas for the manufacture of nitrogen compounds and related chemicals. This plant was described by Ludwig Rosenstein in the Petroleum World, February, 1932, page 24, from which the material following has been extracted.

From the raw materials, air and natural gas, hydrogen and carbon are produced by a cyclic thermal decomposition, over a brick checker work is heated to about 2,000° F., and natural gas passed through until the temperature falls to 1,650° F. The purification of the gas produced is a matter of considerable complexity and the equipment for accomplishing it is a very large proportion of the total equipment in the plant. Naphthalene and tar are removed by oil scrubbers, carbon dioxide and benzol by water and oil scrubbing at high pressure, followed by caustic soda scrubbing to remove the last traces of carbon dioxide. The gas, after the last operation, is ready to go to a gas fractionation plant where pure hydrogen is produced by condensing everything else. Carbon monoxide is scrubbed out with liquid nitrogen and acetylene with liquid ethylene. The final product contains hydrogen and nitrogen only.

The synthesis is carried out at about 750° F. and at a pressure of about 100 atmospheres. The exit gas from the synthesis bomb carried about 12 per cent ammonia while the returned gas contains about 1½ per cent.

At the present time the ammonia produced leaves the plant either as ammonium sulphate, as liquid ammonia or as aqua ammonia. The production of ammonium sulphate from pure ammonia is by no means a simple matter. Where this is done by neutralization with sulphuric acid the heat evolved is very considerable and its removal must be provided for. This is accomplished by so arranging the saturators that an amount of water, corresponding to the heat of neutralization, will be evaporated. Furthermore, the crystal form of the product varies greatly with the quality of the sulphuric acid, the conditions, and depends on the mode of neutralization. The ammonium sulphate crystals are separated from mother liquor by a continuous filter and are then dried in a steam-heated continuous rotary drier.

Liquid ammonia is produced by refrigeration of the gases coming from the catalyst chamber. That portion which is evaporated and made into sulphate obtains its heat of evaporation from the gases issuing from the catalyst chamber. About one-third of the production is sold as liquid for nitric acid manufacture, while two-thirds is made into sulphate.

The plant as it stands consists of two units having each a capacity of 30 tons fixed nitrogen daily. Besides liquid ammonia, aqua ammonia and ammonium sulphate, each unit produces about 100 gallons of very pure, sulphur free, benzol, about 7 tons of a very pure carbon, and a small amount of naphthalene.

S.A.E. 40 OIL FOR GENERAL USE

Why is an S.A.E. 40 oil considered to be better for all around general use in an automobile than one of the lighter or heavier oils?—F. M. E.

A light oil is recommended for low duty lubrication where it will penetrate well at relatively low or normal temperatures. The lightest oils do not adhere well, especially at high temperatures and where the parts are moving at high speeds. The light oils are more easily decomposed than the heavy oils. If an oil is too thin the metal parts are liable to meet, resulting in damage. Rapidly moving parts and possible under considerable pressure may become free from oil, with the result that sufficient heat is developed to melt out the bearings.

The S.A.E. 40 oil is a good average motor oil which may be used for the greater part of the year, during the coldest weather a lower viscosity oil should be used, meeting the conditions of the ordinary car. S.A.E. 40 has a viscosity range 550/652 at 100° F., 250/293 at 130° F. and 69/75 at 210° F.

The behavior of low viscosity oils was investigated by C. T. Doman, The Oil and Gas Journal, March 31, 1932, page 95, by means of dynamometer tests on a Franklin engine. The temperature of the oil leading to the main bearings should not exceed 225° to 230° F., and the tests were made at this temperature. It was shown that there was a uniform tendency for the temperature to rise when the heavier oils were used. There are more objections to the heavy oils than to the lighter ones. Mr. Doman lists several as: Poor performance; lack of power; premature wrist pin knocks; gauling of wrist pin bearings; piston scoring; lack of lubrication when first starting; hard starting in cold weather; increased crankcase dilution resulting from the necessity for more carburetor choking; decreased economy; premature bearing wear due to lack of oil in circulation when entire power plant is cold; overload pump gears when engine is cold. The recommendation is given that the average driver will find S.A.E. 40 oil satisfactory for fast summer driving and S.A.E. 30 for mild winter conditions. S.A.E. 20 is recommended for use during very cold weather.

The greatest protection an engine can have in the winter time is an oil which will first permit the starter to crank the engine fast enough for a quick start. Second, an oil which will keep the engine friction low enough so that the engine has torque enough to keep firing and third an oil which is thin enough to flow instantly and lubricate at once all the internal parts of the engine. A properly selected winter oil will do more to insure quick starting and general owner satisfaction than all the trick starting devices which can be loaded onto the automobile.

YIELDS ESTIMATED FROM GRAVITY OF CRUDE OIL

What would be the recovery upon refining, with tube still a 24 gravity crude as compared with a 40 gravity crude, that is from the Diesel oil to the gasoline fractions, inclusive?—J. S.

While it is a fact that the yield of gasoline and other light products may frequently be predicted to a percentage quite close to that found by analysis, such estimates are not reliable. If a large number of petroleum analyses are set down on a chart on the basis of the gravity of the crude oil against the percentage yield of gasoline, the gasoline yield will be represented by a straight line rising with the gravity. Such graphs are of value where the local conditions are well known and the refining process is adapted for the manufacture of the several products to definite specifications. Yields are influenced by the type of the distillation units and especially with respect to the conditions under which the cracking operation is conducted.

Several examples of crude analyses as related to the gravity of the oil will serve to further explain this matter. One of the oils produced in southern Texas shows an A.P.I. gravity of 59.1°. This yields upon analysis, see Egloff, Nelson and Truesell, The Oil and Gas Journal, February 19, 1931, page 30, gasoline 91 per cent, kerosene 5.7 per cent, residue and loss 3.3 per cent. Selecting at random from numerous analyses of petroleum available the analyses below give an indication of what may be expected in the way of yields from normal oils of the gravities reported:

YIELDS FROM 25 AND 40 A.P.I. CRUDE OILS

Gravity of crude	25°	24.5°
	(%)	(%)
Total gasoline and naphtha.	19	14
Kerosene	3	5
Gas oil	16	20
Light lub distillate	10	12
Residue and loss	52	49
Gravity of crude	**39.8°**	**40°**
	(%)	(%)
Total gasoline and naphtha.	40	38
Kerosene	5	15
Gas oil	15	10
Light lub distillate	12	15
Residue and loss	28	22

The tendency is now to build the topping and cracking still in one unit, with the separation of the products so sharp that there is no necessity for rerunning. A unit of this type may be built and operated to obtain approximately the same yield of gasoline from all normal crudes of the upper gravities.

LIQUEFIED GAS FOR ENRICHMENT

Is liquefied gas used for enriching gas where large volumes of gas are being put through the system? If you know of any case of this kind I would like to have what details you have as to the volume and the method used for introducing the liquefied gas?—W. R. C.

The Union Oil Co. of California reports that the gas system at San Diego, having a capacity of 20,000,000 feet of oil gas each day, has after extensive experiments found that the capacity could be increased to the equivalent of 4,000,000 feet by the liquid gas enrichment method. The addition of the liquefied gas-air mixture provided for an emergency supply of 3,000,000 feet, making a total increase of 35 per cent.

The enriching process is arranged so that the liquefied gas flows under its own pressure to a heat exchanger where the necessary heat is supplied to completely vaporize the gas. From the exchanger the vapor passes through regulators where the pressure is reduced to a desired minimum, then to a mixing nozzle where it meets with the gas to be enriched. A sample of the mixed gas is constantly burned in a flame analyzer which controls a flow regulating valve in the vapor line. When the heating value of the gas falls below or rises above a predetermined point, the analyzer actuates the valve, increasing or decreasing the supply of liquid gas. Thus a finished gas of constant heating value is assured.

The process of mixing liquid gas vapor and air in proper proportions for addition to oil gas during emergencies is accomplished by the use of two positive displacement blowers driven by an electric motor. One blower draws in air and the other takes liquid gas vapor at constant pressure. The air and vapor blowers discharge into a receiver where an intimate mix results from contact with baffle plates.

FLUORESCENCE A NATURAL PROPERTY

How can I put the green fluorescence into lubricating oil that I compound? I have with many other things tried fluorescence dye but it does not dissolve directly and even when made to mix by changing it with reagents the color is weak or fades in a few minutes. I would like to know what chemicals are used to obtain this green fluorescence and how it is done.—R. O. S.

The optical properties of petroleum and petroleum distillates are color, refraction, optical activity, and fluorescence. The phenomenon of certain substances to reflect a light of a different color than their own is known as fluorescence. The lubricating oils are common examples of this property; then there are solids, such as uranium glass and flourspar; alcoholic extracts of certain leaves, many dyestuffs, and a solution of quinine in dilute sulphuric acid. All of these substances are of different composition, so it appears that the phenomenon must be explained as due to a combination of physical and chemical properties and is not the result of any one class of substances or a definite physical condition.

While fluorescence is a specific characteristic, detected by examination in reflected light, it is usually associated with color when describing an oil. It ranges from blue to green, occasionally a reddish green, and is frequently called bloom, the greenish fluorescence being typical of the paraffin base oils.

Fluorescence seems to be a relatively stable property which persists through the range of distillates and is not easily discharged by means of chemicals. It is permanently removed by the action of air in direct sunlight and when this is desired the refiners expose the oil in bleachers or deblooming tanks.

The addition of foreign materials to produce an artificial fluorescence is not practiced and the use of any chemical substance for this purpose is not advisable because it would probably tend to increase the carbon residue, or act to lower the quality of an otherwise good oil. The refiner may increase the depth of fluorescence in some instances by the regular treatment with acid and filtration.

Natural Gas Industry Developments

RATE PROBLEM RAISED IN TIOGA GAS FIELD

HARRISBURG, Pa., May 16.—The introduction of natural gas from the Tioga Field to the central and eastern sections of the state has created a problem with which the Public Service Commission has prepared to wrestle for several months to come.

The initial hearings on the rate complaint case brought by the city of Williamsport and 10 associated boroughs and individuals against the Pennsylvania Power & Light Co. did little more than develop the first legal battles. At the end of three days of general testimony, designed to clear the way for the valuation testimony to come, the hearing was continued until May 19. Three days were set aside by the commission again and it was indicated that these would be required to present the company's valuations of its natural and artificial gas properties.

Harold Evans, Philadelphia, chief counsel for the complainants, raised two major contentions during the first hearing. He asked the commission to consider as the price of natural gas to consumers in the Williamsport area, the price of gas in the Tioga Field, plus the cost of transporting it.

Evans also urged the commission to review all contractual arrangements between the Pennsylvania Power & Light Co. and its two affiliates in producing and marketing the Tioga gas. These are the North Branch Development Co., leasing the gas properties, and the Susquehanna Gas Co., the drilling and producing unit.

The Philadelphia attorney, who served Governor Pinchot as counsel for the House public utilities investigating committee during the 1931 regular session of the legislature, maintained the subsidiaries are not public utilities subject to the control of the commission. Because of this, he urged the commission to review all investments, etc., which he said might be reflected in the rate-base valuation of the retailing company.

Charles K. Robinson, Pittsburgh utility specialist at the head of the Pennsylvania Power & Light Co. legal staff in this proceeding, emphatically disputed the relevancy of the contractual agreements to the rate complaint. For an entirely different reason he joined with Evans in asking an early decision by the commission on the status of the subsidiaries in the case.

Robinson argued that the commission should not review the administrative and managerial judgments of the affiliates unless it could be proved that they are "grossly in error."

Commissioner Samuel Walker indicated the commission would rule on this matter soon, probably before the next hearing.

Robinson stated—and the case will be presented on this basis—the company will submit accountants' testimony on actual cost of the investment in the natural gas field and pipe lines. On the manufactured gas plants, which company officials testified are necessary for emergency use in event of pipe line or other failures in natural gas service, the company will submit data on historical cost and depreciated reproduction cost. The latter represents the estimated cost of rebuilding an existing plant.

A more recently filed complaint, charging the Pennsylvania Power & Light Co. is chartered to supply artificial gas only and should be required to apply for amendments to authorize natural gas service, will be joined with the earlier rate complaints when the hearings are resumed.

COMMISSIONER REOPENS LONE STAR GAS CASE

Commissioner C. C. Childers of the Oklahoma Corporation Commission reopened his fight for lower gas rates from the Lone Star Gas Co. in 26 cities and towns of the State by issuing a statement paving the way for the commission to employ a Fort Worth firm of engineers to work on the evaluation of the Oklahoma properties of the company.

After reciting that the Texas and Oklahoma commission recently held a conference in Texas on the Lone Star rate case, Mr. Childers said the company has the firm working on its Texas property and points out that 10 or 15 per cent of the company properties are in Oklahoma. He says that after returning to the State the Oklahoma commission sent its attorney, E. S. Ratliff, and its auditor, Paul Reed, to Fort Worth to study the report of the engineers thus far drafted.

"The commission's auditor," said Mr. Childers, "is preparing a statement to be considered by this commission, together with a statement by the attorney, and I am of the opinion the same firm making the Texas appraisal and valuation should be employed by this commission to complete the work in Oklahoma."

When the original hearing ended Chairman Paul Walker declared for a 62-cent rate while Mr. Childers insisted upon a 45-cent rate. E. R. Hughes, minority member, indicated he would have to see figures that would justify a 68-cent rate.

DOMINION GAS APPOINTMENTS

CHATHAM, Ontario, May 14.—Reorganization of the Dominion Gas & Electric Co. with a view to co-ordinating the operations of its various subsidiaries was announced last week by H. R. Milner, K. C., recently elected to the presidency in succession to the late C. J. Yorath.

Julian Garrett, manager of Northwestern Utilities, Ltd., of Edmonton, has been appointed a director of the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary.

P. D. Mellon, superintendent and chief engineer of the Calgary Gas Co., has been named a director of Northwestern Utilities, Ltd., of Edmonton.

H. S. Tims of Calgary is appointed financial comptroller of all the operating companies.

E. W. Bowness, manager of the electrical subsidiaries of the Dominion Gas & Electric Co., becomes a director of Northwestern Utilities, Ltd., of Edmonton, Canadian Utilities, Ltd., of Calgary, and the Union Power Co. of Drumheller, Alberta.

H. S. Watts, secretary-treasurer and a director of the Calgary Gas Co., will continue in charge of the administration of that company; and D. K. Yorath, secretary of Canadian Utilities, Ltd., will have charge of insurance and statistics of all operating companies, in addition to his present duties.

ALBERTA GAS EXPORTS

CHATHAM, Ontario, May 14.—Official figures made public by the Alberta provincial government show that in 1931 exports of natural gas from the province aggregated 44,000,000 feet. This gas was exported to Montana by the Range Oil & Gas Co. of Calgary, production coming from the Rogers-Imperial structure in the border area east of Coutts. For 1932, exports in January and February reached a volume of more than 13,000,000 feet.

The province of Alberta receives a revenue of one-quarter cent per 1,000 feet on all gas exports, the 1930 tax yielding $52. The 1931 tax is not due till June 30.

COMMITTEE ON AWARD RECEIVING NOMINATIONS

Recipients of the Charles A. Munroe Award form one of the most exclusive and honorary fraternities within the gas industry. Today this fraternity has only three members, as only one new member can be added each year for having made outstanding individual contributions toward the advancement of the gas industry.

The first Charles A. Munroe Award was presented in 1929 to Nils T. Sellman, of the Consolidated Gas Co. of New York, in recognition of his work in connection with the development and marketing of the gas refrigerator. The second award went to J. L. Conover, of the Public Service Electric & Gas Co. of Newark, N. J., in recognition of his work in the introduction and widespread application of machine bookkeeping systems. The third award was presented last year to Theodore V. Purcell, of the Peoples Gas Light & Coke Co., Chicago, for his constructive leadership in rate making.

Who will be honored for 1932 will be answered at the fourteenth annual convention of the American Gas Association next October. The committee, consisting of F. C. Freeman, president, Providence Gas Co., Providence, R. I., chairman; N. C. McGowen, president United Gas Public Service Corp., Houston, Tex., and Frank R. Phillips, president Philadelphia Co., Pittsburgh, Pa., is entertaining applications. The recommendation of this committee will be presented to the executive board of the association for approval.

Under the terms governing this award, the most conspicuous contributions to the general interests of the gas industry may be presumed to include research, invention, operating methods or practices which reduce cost of manufacture and distribution, improved distribution or other service, increased sale of gas, development of new uses for gas, improved public and employe relations, promotion of safety, development of improved accounting practices, widening the field of gas-making materials, new methods of manufacture, finance, publicity, new gas works products and by-products, rates, etc.

Applications for the 1932 award consisting of a substantial financial recognition by an engrossed certificate, may be made by any individual or company member of the American Gas Association before August 1.

NEW HELIUM PLANT

WASHINGTON, D. C., May 16.—The Navy Department has awarded contracts for construction work at the naval air station at Sunnyvale, Calif., involving $383,827, as follows: Helium Co., Inc., of Louisville, Ky., $133,500 for construction of helium repurification plant; Robert E. McKee, Los Angeles, $165,700 for industrial buildings; and Frederick W. Snook Co., San Francisco, $84,627, for boiler plant equipment and piping systems.

W. E. CRIMPENSHAW DIES

HOUSTON, Tex., May 16.—W. E. Crimpenshaw, 59, superintendent of the Humble Pipe Lines at Goose Creek, died last week. Mr. Crimpenshaw was a native of Pennsylvania and came to Texas more than 30 years ago. He had lived at Goose Creek 11 years.

P. G. & E. SALES

Sales of gas on the consolidated system of the Pacific Gas & Electric Corp. aggregated 29,429,747,100 feet, the increase of 6,351,711,200 feet, or 27.5 per cent, exceeding that of any previous year.

COMMISSION EXPLAINS CHICAGO RATE DELAY

The Illinois Commerce Commission denies all blame for whatever delays may have occurred in pushing to conclusion pending natural gas cases affecting the city of Chicago and other municipalities of northern Illinois.

Progress in the Chicago group of cases has been slower than in those affecting central Illinois, the commission pointed out. Up to now municipalities and civic organizations participating in the litigation have offered no evidence whatsoever but have "confined their activities to a cross-examination of the witnesses called by the Peoples Gas Light & Coke Co. and are still engaged in conducting such cross examination," the statement declares. It continues:

"Since these cases have been on hearing, the commission has repeatedly urged and requested the representatives of the city of Chicago and the intervening municipalities and other organizations to present any evidence they might have as speedily as possible, but as yet no evidence has been offered and as near as the commission has been able to determine no substantial progress has been made to prepare any such evidence.

"The commission has frequently stated that as soon as the parties concluded their evidence it was ready and would proceed to introduce evidence on its own behalf which was being prepared by its engineers and accountancy staffs, but that it did not desire to do so until all other evidence was in."

BORDER CITIES FRANCHISE

CHATHAM, Ontario, May 14.—The Southern Ontario Gas Co. has secured transmission franchises for a line to connect its existing system with Windsor and the Ontario border cities. The townships to be traversed include Colchester North, Sandwich South and Sandwich East. The company is now making application to Charles McCrea, Ontario minister of mines at Toronto, for approval of these transmission franchises, and of competitive franchises to sell and distribute natural gas in the border cities municipalities of Windsor, Sandwich and East Windsor. The latter franchises were approved by the ratepayers last December, but must secure the sanction of the minister of mines.

The Union Gas Co. has a system serving all the Border Cities area, some $4,000,000 having been spent in recent years to duplicate the transmission line from the Tilbury Field, provide a standby oil-gas plant and improve the Border Cities distribution.

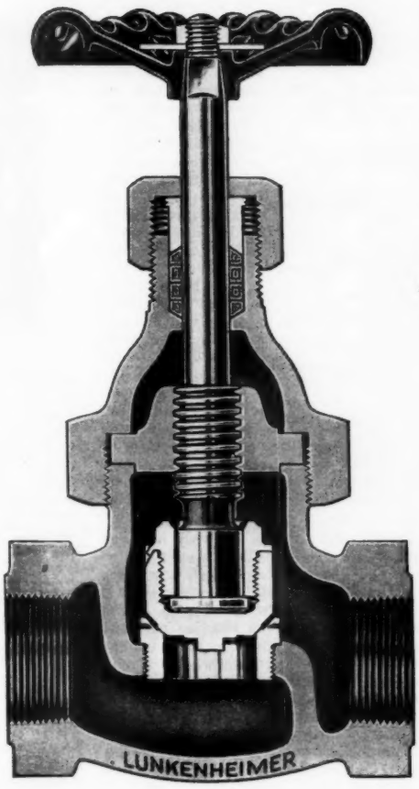
PERMIT FOR CRAIG LINE

CASPER, Wyo., May 16.—Certificate of convenience and necessity has been granted by the Colorado Public Service Commission to the Ohio Oil Co. for a natural gas pipe line which the company will lay from the newly discovered Craig structure. Work of laying the line is to be under way immediately. The line will be 3½ miles long and of 3-inch and 4-inch pipe. It will run from the Bogenschultz ranch to the western boundary of The Texas Company property 1 mile west of Craig.

ALBERTA GAS TAX

CHATHAM, Ontario, May 14.—Notice has been served on Turner Valley producers that under the corporation taxation act of Alberta they are liable for a tax of 1 cent per 1,000 feet on natural gas produced in 1931. The Oil and Gas Association of Alberta will file a formal protest against the tax.

STANDARDIZE ON LUNKENHEIMER



A NEW PRODUCT

Fig. 1720

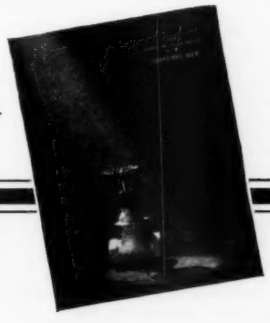
600 lb. STEEL

Globe Valve

This Lunkenheimer design reflects a pronounced advance in the construction of steel valves of the inside screw type—a Bonnet-Thread-Bushing, made of an alloy selected primarily for its wear resisting properties at high temperatures. This construction, together with the specially heat treated stainless steel seat and disc should commend the valve to any user of inside screw steel globe valves.

Globe and angle patterns, screwed or flanged, with Full-way or Throttling type seats and discs are available in sizes up to 2 inches. Recommended for steam pressures up to 600 pounds at 750 degrees.

Descriptive booklet F. 591 sent on request.



BUY FROM THE LOCAL LUNKENHEIMER DISTRIBUTOR

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO BOSTON PHILADELPHIA
PITTSBURGH SAN FRANCISCO LONDON
EXPORT DEPT 318-322 HUDSON ST., NEW YORK

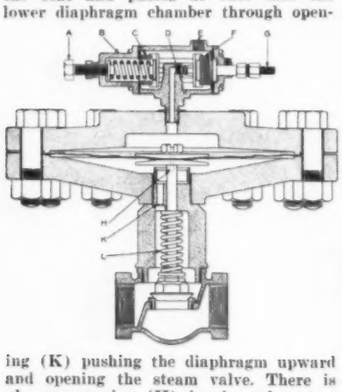
15-55-91

Oil Industry Equipment and Supplies

NEW TAG CONTROL HEAD IMPROVES INSTRUMENT

The new steam-operated temperature and pressure controller manufactured by C. J. Tagliabue Manufacturing Co., Brooklyn, N. Y., utilizes, without waste, the pressure of the steam to operate a diaphragm valve. Variations in the pressure do not affect the accuracy of control as a differential pressure above and below the diaphragm governs the steam valve opening.

The normal position of the steam valve is closed. Steam enters the valve above the seat and passes at once into the lower diaphragm chamber through open-



ing (K) pushing the diaphragm upward and opening the steam valve. There is also an opening (H) in the valve stem which allows steam to enter the upper diaphragm chamber. It the steam in the upper diaphragm chamber is not allowed to escape, both chambers will have the same pressure and the valve spring (L) will close the steam valve.

If, however, the steam in the upper diaphragm chamber is allowed to escape through control port (D) which has a larger opening than (H), the pressure above the diaphragm will be less than the pressure below the diaphragm and the steam valve will be opened by the differential pressure pushing the diaphragm upward. The extent of the steam valve opening depends on how fast the control port (D) allows steam to escape from the upper chamber. Hence the steam valve may be wide open, tight shut or in a throttling position.

The control port (D) is operated by the thermostatic bellows (F), a part of the usual thermostatic system which includes a bulb and connecting tube (G). (C) is a pressure equalizing bellows and seal for preventing steam from leaking through the pressure and temperature setting screw (A). (E) is a connection for control port escapement.

When the bulb is at the controlling temperature, it exerts a moderate pressure in the bellows which expands and partially closes the control port (D) allowing just enough steam to escape from the upper diaphragm chamber to maintain the correct differential so that the steam valve can pass enough steam to hold the temperature.

When the bulb is at a higher temperature than that for which the controller is set, sufficient pressure is exerted in the bellows to close the control port (D). The steam pressure in the upper and lower diaphragm chambers is now equal and the spring (L) closes the steam valve.

When the bulb is at a lower temperature than that for which the controller is set, the pressure in the bellows is reduced so that it contracts enough to open the control port wide, allowing more steam to escape from the upper diaphragm chamber than can enter through opening (H). The pressure below the diaphragm is now enough to counteract the pressure of the spring (L) and the steam valve opens wide.

SIEVERS REAMER MADE ON HARROW PRINCIPLE

The Sievers reamer, put on the market by the Security Engineering Co., Whittier, Calif., incorporates a positive shearing action to the cutters, thus creating a fast and easy method of reaming.

Instead of imparting a knurling, chipping action, the Sievers reamer is designed on the principle of a disc harrow. Together with its action the cutting surface of the tool has between 30 and 40 per cent of contact with the sides of the hole, due to the angle at which the cutters are set, and it is impossible for an operator to shove or drop it through tight spots. Therefore upon completion of a reaming job the hole must be perfectly round and to the same gauge as the tool itself.

Besides its efficiency as a tool for reaming, the Sievers reamer is used for drilling guide purposes. This is said to have proven an effective method of stabilization. A reamer may be run to full-hole gauge and still operate efficiently after the bit has become worn, since reamers themselves are cutting tools. The use of a tool which may be run with the full-gauge diameter is of importance. A reamer smooths out the hole at the same time that it stabilizes and allows the successive bits to be lowered to bottom without their being used to ream their way down, thereby allowing the bits to start their heavy cutting operations with an absolute minimum amount of wear having already taken place.

The cutting action of the Sievers reamer tends to impart a downward thrust to the tools, thereby assisting the progress of the bit rather than retarding it.

The Sievers reamer is employed extensively to stabilize and centralize core barrels and other special tools such as formation tester, tools used for rat-holing, impression blocks, etc. To obtain a first class core, it is necessary to rotate the core barrel about its true axis. If the core barrel is not stabilized, the path of rotation of its axis may assume the shape of a conical frustrum, with the slant of the cone running inwardly towards the bottom of the hole. If this condition occurs, it is an easy matter for the core to become broken and disintegrated so that the relative positions of the respective core sections (as existing in the formation) may become disassociated to such an extent that a true picture of the underground structure is not obtainable.

TWO SPLIT-PHASE MOTORS

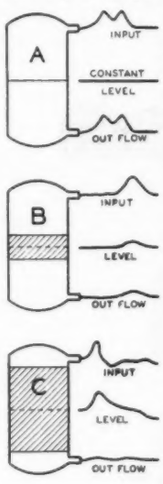
Two new split-phase motors are announced by the Wagner Electric Corp., St. Louis, Mo. These motors, designated as 44RB and 56RB, are said to have been redesigned completely to provide quiet, vibrationless, cool and trouble-free operation. New features are drip-proof endplates, liberal woolyarn lubrication and handy conduit box adjustable in four positions. The 44RB has a redesigned switching mechanism.

GEAR SEALING PROCESS

The engineering research department of the Caterpillar Tractor Co., Peoria, Ill., has perfected, and the company now has placed in production, a gear-sealing process to protect the drive gear in the rear end of tractor from dust, mud and grit. The process, for which a patent has been requested, accomplishes the dual purpose of sealing oil in gears and keeping dirt out through a combination of hardened washers and spring-loaded cork gear housing. The process is being used on most of the new tractor models now in production.

LIQUID LEVEL STABILOG INTRODUCED BY FOXBORO

The liquid level Stabilog, an unusual instrument designed especially for the continuous process industries, is being introduced by the Foxboro Co., of Foxboro, Mass. With the announcement of this instrument, the Foxboro Co. states that an unusual process control problem has been solved. The problem is the difficulty with which satisfactory control is obtained at critical points in a process because of the surging flows caused by the use of incorrect types of level controllers.



The Foxboro liquid level Stabilog positively prevents these surges in flow, according to the manufacturer. This instrument is made in two types, throttling and averaging, and these two types are said to take care of every level problem. Three typical examples are shown in Figures A, B and C. In each of these a constant inflow will result in a constant outflow.

The throttling type is used in processes where it is desirable to hold a close level and yet have a smooth throttling valve action that will not set up surges in the controlled flow. In Figure A, the level is held exactly on the line with the result that the outflow is the same as the inflow. In some cases where a more uniform outflow is desired, the Stabilog may be adjusted so that the level is held only within fairly close limits as in B. In this case the vessel and the outflow will not reflect the sudden sharp changes that occur in the inflow.

The averaging type allows the level to vary within safe limits but holds the outflow as nearly uniform as possible, as in C. In this case the outflow averages out the variations in the inflow.

The level Stabilog is a combination of the Foxboro Stabilog control system and a Foxboro differential pressure type liquid level gauge. A complete description of this instrument may be had by writing to the company.

NEW OIL-BURNING FURNACE

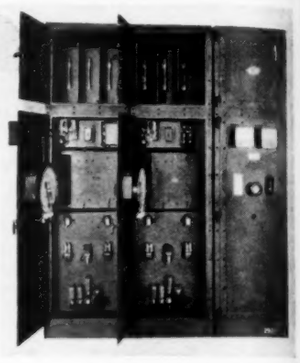
A new type of oil-burning furnace, utilizing the heavy and less costly domestic fuel oils, cleanly and economically, has been developed by engineers of the General Electric Co. This unit will be completely assembled at the factory and will not be an attachment that can be added to any existing furnace. The principle of combustion, perfected by engineers in the company's laboratories, is such that the furnace not only operates without noise but is said to emit practically no soot or dirt from the chimney. It is so designed that even the motor does not have to be oiled nor the thermostat clock wound. The entire apparatus is completely enclosed in steel.

JESS EMERY IN EAST TEXAS

Jess Emery has been appointed East Texas representative for Jon R. Long, Fort Worth, Tex. His headquarters and warehouse stocks of oil-country equipment are in Kilgore.

CUBICLE STARTER PARTS ARE EASILY ACCESSIBLE

Cubicle type automatic starters for synchronous motors are in increasing demand, particularly in installations where the started is to be placed in the mill room with the motor, or where open type starters are undesirable because of at-



mospheric conditions. One type of cubicle starter for synchronous motors recently developed by the Electric Machinery Manufacturing Co., Minneapolis, Minn., uses a front compartment for the meters, control relays, rheostat and field contactor; rear compartment for the oil-break line switches; and upper compartment for the disconnects. The starter is designed to permit easy access to all working parts.

NEW DEVICE TESTS FILM STRENGTH OF LUBRICANT

The Timken wear and lubricant tester, announced by the Timken Roller Bearing Co., Canton, Ohio, is designed to test the load-carrying capacity or film strength of lubricants, particularly beyond the range of viscous lubrication and is therefore desirable for testing "extreme pressure" lubricants. Both fluid oils and greases can be tested.

Tests can be made to show accurately the comparative load-carrying capacity of lubricants at constant rubbing speeds, the maximum load which a lubricant will stand before the film breaks down, and these can be made as applying to any operating condition as to load or speed. By the application of simple formulas accurate readings may be made and filed.

Manufacturers of oils and greases will find this machine valuable in testing lubricants for any given purpose. But the use of this machine is almost equally useful to machinery users and manufacturers, not only for determining what type of lubricant is best suited for each piece of equipment, but also in checking each new purchase of lubricant to make sure that it is in accord with specifications.

The tester enables the machinery manufacturer to give proper lubrication instructions to users of his machines, thus still further simplifying lubrication problems. In operation the machine provides a means whereby those in industrial plants, power plants, oil refineries, automobile factories or anywhere, can investigate the load-carrying capacity of lubricants and do so rapidly, easily and with accuracy.

J. S. Tritle has been elected vice president in charge of operations of the Westinghouse Electric Supply Co., wholesale distributor of Westinghouse products to electrical dealers, contractors and industrial establishments.

President Holmes on Stand at Austin

Chief Executive of The Texas Company Only Witness Heard by Special Commissioner Shelley in Ouster Case

AUSTIN, Tex., May 16.—The taking of testimony before Special Commissioner George E. Shelley in preparation for the trial of the oil ouster suit, pending in the Ninety-eighth District Court, continued during the past week. R. C. Holmes, president of The Texas Company, continued on the stand.

In order "to clarify the issues and relieve the Attorney General of the necessity for offering evidence to support admitted facts," C. B. Ames, vice president of The Texas Company and one of its attorneys, presented the following statement:

Company's Statement

"The Texas Company participated in various meetings of marketers during the years 1928 and 1929 for the purpose of preparing a code of marketing practices to submit to the Federal Trade Commission. A meeting was held at the call of the Federal Trade Commission in St. Louis, attended by representatives of a great number of companies and associations engaged in marketing refined petroleum products, at which the code was formally submitted. The commission took the code under advisement, made some modifications, and promulgated it in July, 1929, as the national code of practices for marketing refined petroleum products, set out in paragraph No. 28 of the (State's) petition. The Texas Company accepted this code and has since complied with its rules in all parts of the United States. It has advised others to accept and abide by the code. It has co-operated with other marketers in appointing code committees in the various states of the Union, including Texas, and has participated in the meetings of these committees, the purpose of which has been to assist all marketing units in understanding and complying with the rules of the code.

"The original code was reconsidered by the Federal Trade Commission and, with slight modifications, promulgated a second time in 1931, the modified draft being that set out in paragraph No. 43 of the (State's) petition, since which time The Texas Company has continuously observed the rules in the modified draft. It likewise admits that prior to the adoption of the code some one or more of the various unfair methods of competition condemned by the code were practiced by some one or more persons or companies engaged in marketing refined petroleum products and that the purpose of the code was to put a stop to such practices. The acceptance of the code by The Texas Company was filed with the Federal Trade Commission and its support of the code has been publicly announced.

"These matters have never been denied or concealed by The Texas Company and are now for the purposes of this record expressly admitted."

Attorney General Allred asked: "Will you admit that your president did execute a written acceptance, with authority from the company to do so?"

"The acceptance was signed by W. S. S. Rogers, vice president." Mr. Ames answered.

Mr. Holmes was questioned at some length as to his relations with officials of other companies. He said he had talked with officials of other companies about the code of ethics and about activities carried on by the American Petroleum Institute, but denied having "conferences" concerning "how the oil business should be carried on."

In the course of the questioning, Attorney General Allred made it clear that the State regards the form of acceptance of the code sent out by the Federal Trade Commission as an agreement between those signing it, while Mr. Holmes and counsel for The Texas Company insisted that the only "agreement" had was with the Federal Trade Commission itself.

"Major" Companies

Defense attorneys objected to questioning of Mr. Holmes as to whether certain companies were "major" companies. John E. Green of Houston, representing the Gulf, said this line of questioning could have no purpose but to stir prejudice. Frank Andrews of Houston, representing the Standard Oil Co., said there was "no yardstick" by which a "major" company could be distinguished from a "minor" company.

"We are trying to show what the general understanding is as to what companies are majors or independents," said Attorney General Allred.

"The Attorney General has injected a new word into the discussion," Mr. Ames shot back. "We have been talking about 'majors' and 'minors.' This witness has said The Texas Company was known as a 'major' company, but he would not say that it is not also an independent company."

"Prior to your service on the committee had you discussed forming a code?" asked Mr. Allred.

"We had many conversations about a code, or about codes, in our own organization," Mr. Holmes said. "There were several state codes, either in effect or in preparation before the national code was formulated."

His conferences with officials of other companies concerning the code, he said, consisted only of committee meetings. He appointed a committee of Texas Company officials and employes to make a draft of a code and the Federal Trade Commission's proposed code for Virginia marketers was used as a model.

The Attorney General offered in evidence a copy of a memorandum on the meeting of this Texas Company committee, in which the tentative code drafted by it was set forth, together with some details of the discussion. In reading the memorandum Mr. Allred stressed a statement that H. W. Dodge, general sales manager of The Texas Company, had strenuously opposed a rule against quantity discounts on the ground, among others that it would "make possible underselling on a large scale by those wholesalers, dealers or distributors who refused to sign or abide by the code." He also stressed a statement that Mr. Dodge had objected to a rule against coupon books.

Attorneys for other defendants pointed out that the memorandum referred to proceedings of an interdepartmental committee of a single company and declared it had no relation to others.

Nothing Unlawful

"This instrument shows on its face that there was nothing unlawful about it and that it has no tendency to prove a conspiracy," said Frank Andrews, attorney for the Standard Oil Co.

Secret Hearing Attacked

Attacks on the legality of secret courts of inquiry held in Austin last summer, at which oil company officials were questioned by members of the Attorney General's Department, figured in the proceedings Thursday. Attorneys for the oil companies declared the courts of inquiry were illegally held and the testimony taken at them inadmissible for any purpose. They also attacked the constitutionality of the antitrust laws as applied in the holding of such courts and in the proceedings before the special commissioner.

Eighteen more exhibits, intended to support the State's claim of a conspiracy between the defendant companies to control the business of selling petroleum products, were offered by Attorney General James V. Allred.

Discussion of the courts of inquiry followed a question asked Mr. Holmes by Mr. Allred. He had testified he did not remember whether his company, at one time, had abandoned a rule of the petroleum marketers' code of ethics, relating to commercial discounts, because of the failure of other companies to observe the rule. Thereon he was asked if he recalled his answer to a question on this subject put to him in the course of a court of inquiry conducted here last summer by an Austin justice of the peace.

"We object to any reference to such testimony," said E. E. Townes, attorney for the Humble. "These courts of inquiry were illegally held. Attorneys were excluded. No copy of the evidence was shown the witnesses or furnished the attorneys. No copy was returned to the court, as the law requires."

"Let me ask a question for the purpose of objection," said A. S. Hardwicke, attorney for the Magnolia. "Was your testimony in this inquiry written, Mr. Holmes?"

"My recollection is there was a stenographer present," the witness answered.

"Was the testimony read to you after being taken down?"

"No."

"Did you sign it?"

"No."

"Then I object to any use of it for any purpose, as not having been taken in accordance with law."

Alfred McKnight, attorney for the Sinclair, asked whether any other defendants were represented at the court of inquiry.

"Not until they were represented by Attorney General Allred, Assistant Attorney General H. D. Bishop, the judge or the stenographer," said Mr. Holmes.

Counsel Excluded

"Your own attorneys were not present, were they?" asked Hines Baker, attorney for the Humble.

"No," said the witness. "Gen. J. F. Wolters told me they would not be permitted to be present and they left me when the inquiry started."

"Mr. Holmes, didn't General Wolters and Mr. Green tell me you would be glad to testify on any point on which I wanted information?" asked Attorney General Allred.

"I didn't tell you anything," said John E. Green, attorney for the Gulf, "I wasn't there."

"I meant General Wolters and Mr. Crain," said the attorney general. "I didn't exclude them. I said we had never held such an inquiry with attorneys for the witnesses present."

"You excluded me when my witnesses were testifying at this court of inquiry," said Mr. Green. "I asked you if I could come in. You said 'no,' and I walked out."

Mr. Baker said it had been established that the court of inquiry at which Mr. Holmes testified was a wholly illegal proceeding and that the testimony taken therein could not be used either for the purpose of impeaching the witness or for any other purpose.

W. H. Burgess, attorney for the Pasotex, asked to see the paper about which the witness was being examined.

"I haven't asked him about any paper," said Mr. Allred.

After some argument as to whether the attorney general had the record of Mr. Holmes' testimony, Mr. Allred asked the witness if he had made any objection to going before the court.

Mr. Holmes replied that he had not objected, that he went in response to a summons, not knowing what his rights were.

Mr. Townes asked whether a copy of the court of inquiry testimony had been filed with any court.

"You know I haven't filed it," said the attorney general.

"Have you given any of us a copy?"

"No," said the attorney general.

"Will you give us a copy?"

"Not at this time."

After some further passages between counsel, the attorney general asked Mr. Holmes:

"Is it not a fact that I asked you this question: 'You spoke about the Gulf and others continuing to give discounts?' And is it not a fact that you made this answer: 'Yes, the Atlantic and the Gulf held out and in a good many cases the others had to follow them'."

R. L. Batts, attorney for the Gulf objected to all questions on the ground that sections of the statutes relating to evidence in antitrust cases, as applied in the courts of inquiry and in the proceedings before the commissioner, were violative of the fourteenth amendment to the Federal Constitution.

He said the statutory provisions in question, when applied in a case where several defendants are sued jointly, give the State an unfair advantage, in that it can secure evidence not available to all the defendants.

"A defendant can be compelled to produce its books and papers for the benefit of the State's case," he said, "but the other defendants have no way to secure from it the books and papers they need for their case. The Gulf has no method of securing any records of The Texas Company except such as the attorney general calls for."

Denial of Rights

The result of the State's advantage, he said, is a denial of equal protection of the law and a taking of property without due process.

Mr. McKnight adopted the objection of Judge Batts, with the additional contention that the statutes do not contemplate use of the procedure except in the prosecution of a single defendant.

Frank Andrews, attorney for the Standard Oil Co., adopted the Batts objection and made the additional contention that "the statutes as now being followed violate Section 56 of Article 3 of the State Constitution."

"I insist," said Mr. Burgess, "that counsel and witness have a right to see any paper from which a witness is being examined. May I see this court of inquiry testimony?"

"No," said the attorney general.

"May the witness see it?"

"Not now."

Mr. Allred added that the record should show "the same attorney who objected yesterday to the witness refreshing his memory from a document is now insisting on the witness so refreshing it."

"The document now in question is his own testimony and he is entitled to see it," said Mr. McKnight.

Mr. Allred repeated his question to the witness and Mr. Holmes asked:

"Do you still refuse to let me see it?" referring to the copy of his testimony before the court of inquiry.

"Yes," said the attorney general.

"Shall I answer?" Mr. Holmes asked his attorneys.

Judge C. B. Ames, vice president of The Texas Company, replied in the affirmative.

"I don't deny or desire to deny anything that I may have said," declared Mr. Holmes. "Assuming that you have a correct transcript of my testimony, I am ready to admit it all."

Just before this, the witness and the attorney general had a brief interchange when the former repeated a question concerning the code rule about commercial discounts.

"I told you I did not know," said Mr. Holmes. "You needn't ask me twice. I am trying to be civil and you can be civil, too."

Mr. Allred explained that it was sometimes necessary for lawyers to ask the

same question twice and did not imply any doubt of the witness' veracity.

Leading Questions

Earlier in the hearing, the attorney general announced he would ask Mr. Holmes some leading questions.

"It should be noted," said Judge Batts, "that the attorney general has announced he is about to violate the law."

"Do you seriously want to put such a remark as that in the record?" asked Mr. Allred.

"You have said you were going to do something that is not authorized by the rules of procedure," retorted Judge Batts.

"I object to that remark," said the attorney general. "It is improper."

Mr. Allred endeavored to develop testimony as to how many filling stations The Texas Company operated under leasing and agency arrangements when the code was adopted and how many it now operated.

Mr. Ames said the company had comparatively few such stations at the time the code was adopted and that it now has approximately 3,700.

At the afternoon session Mr. Allred questioned Mr. Holmes about efforts to induce certain companies to abandon discounts except as allowed under the code and about the Federal Trade Commission's action in 1931 in rescinding its approval of the larger part of the petroleum marketers' code.

Attitude on Discounts

He offered exhibits, including a letter in which Mr. Holmes expressed the hope that two companies would abandon the discounts condemned by the code; a telegram in which Mr. Holmes referred to the commission's action in suspending its order rescinding approval of the code, and a letter in which Col. H. T. Klein, chief counsel for The Texas Company, advocated adherence to the rules of the code whether the commission renewed its approval or not.

In the telegram, Mr. Holmes said the commission had ordered a hearing to determine its further action in regard to the code and expressed the view that pending the outcome the code should be adhered to.

The Klein letter, dated March 12, 1931, was addressed to C. C. Stanley of Los Angeles, general counsel for The Texas Company of California. It advised Mr. Stanley that following withdrawal by the commission of its approval of the code, there had been a meeting of attorneys of the larger oil companies doing business in the eastern section of the country at which the general opinion was that observance of the code should be continued.

In connection with this letter, the attorney general introduced, among other exhibits, a copy of a communication to E. G. Seubert, chairman of the general committee of the marketing division of the American Petroleum Institute, signed by a group of attorneys, setting forth their reasons for advocating continued observance of the code, regardless of whether the Trade Commission should reapprove it. Among reasons given were that the lawyers held the code to be a decided step forward in preventing unfair methods of competition, useful both to consumers and to the industry, discouraging fraud and deception in marketing and not involving any violation of law.

The Trade Commission's order approving the modified code and a pamphlet containing the code as it now stands, with interpretations by the American Petroleum Institute, were among other exhibits offered by the attorney general.

Friday's Hearing

Special Commissioner George E. Shelley Friday suspended his hearing indefinitely, Mr. Holmes having been the only witness examined in behalf of the State.

Mr. Allred asked Mr. Holmes if he recalled that recently the retail price of straightrun gasoline had been raised by The Texas Company to 18 cents, and if he would say just how the increase had been determined.

Mr. Holmes said he did not know about that particular increase, but added: "We have been trying to get prices, as conditions have warranted, to a point at which we would not lose money. We have been losing money for two or three years. Whenever conditions appeared to justify a price change, we have made the change."

"You have been losing money since the code of ethics was put into effect, haven't you?" asked the attorney general.

"That is correct," said the witness.

"And at the same time you have been increasing the retail outlets under your control?"

"Under our control, yes," said the witness. "I do not know that we have increased the total number of outlets."

"You have dictated the retail prices?" asked the attorney general.

"Where we own or lease a station and the agent sells on commission, he sells at our price," replied Mr. Holmes.

"And you have been losing at that price?"

"We have been losing at the prices that have prevailed."

Mr. Holmes was asked how often in the last two and a half years The Texas Company has taken the lead in raising or lowering gasoline prices. He said that he did not know.

"Isn't it a fact," asked the attorney general, "that over the country generally one company takes the lead in making a price change and the others follow?"

"I will say again," said Mr. Holmes, "that we desire to conduct our business at a profit. Whenever conditions have warranted an increase and the price we were getting has not been sufficient to give us a reasonable profit, we would change the price. If we found it unreasonably high in view of existing conditions, we would lower it. If some other company raised prices under conditions that seemed to justify a raise we would follow the raise. On the other hand, when other companies lowered the price, we would face the necessity of protecting our business. If we did not follow the change, our customers would go to other stations. My observation is that most companies follow price changes initiated by others for the reasons I have given, not because of concerted action of any kind."

Tax Evasion

"Let me add that conditions in this state which have made the gasoline business unprofitable are as much due to gasoline tax evasion, which you could stop, as to any other cause."

Mr. Allred sprang to his feet and demanded whether the witness had any evidence that would stand in court as to gasoline tax evasions.

"I don't know," said Mr. Holmes.

"Then why did you make that statement?" asked the attorney general.

"I know there have been evasions," said the witness.

"You don't even know what duties the attorney general is charged with," declared Mr. Allred.

"You are here to protect the oil industry as well as the oil consumer," retorted Mr. Holmes.

"That is correct," said the attorney general, "but you made a statement that isn't true."

"It is true that you are charged with enforcing all laws," said Hines Baker, attorney for the Humble, addressing the attorney general.

"That is true, but I am not a policeman," said Mr. Allred. Turning to the witness, he continued:

"I want you to tell me now what evidence of tax evasion you can furnish."

Frank Andrews, attorney for the Standard Oil Co., objected, declaring that it is the duty of certain officials and of such bodies as grand juries to inquire into whether there are violations of law.

"It is not the duty of this witness or his company to lay evidence in the lap of the attorney general," he said.

"That there is widespread evasion of the gasoline tax in Texas is a matter of common knowledge," said Charles L. Black, attorney for The Texas Company. "It has been discussed in the legislature and must be known to the attorney general."

Mr. Allred retorted that "violations of the antitrust law also have been discussed in the legislature," and said he wanted to make a statement in justice to himself.

Allred's Attitude

Mr. Black objected to the attorney general's testifying against a witness called by himself, and Alfred McKnight, attorney for the Sinclair, said it was improper for Mr. Allred to argue with his own witness.

Mr. Allred: "The Attorney General's Department is not charged with ferreting out tax evasions. That duty is laid on the comptroller. The comptroller has done his best to perform it with a small staff. He has furnished evidence in a number of cases and we have filed some suits. The evidence has not been furnished by Mr. Holmes or representatives of his company or any other of the defendants."

"Then you admit there have been gasoline tax evasions," said Judge Ames.

"No, I do not," said Mr. Allred. "I suspect there have been evasions, both on the part of the majors and other companies."

Clarence R. Wharton, attorney for the Sinclair, said more than $8,000,000 had been lost to the State in a year through tax evasions.

"The comptroller can tell you," he said to the attorney general, "that the evasions have not been on the part of the major oil companies but by gasoline bootleggers."

Mr. McKnight moved to strike the attorney general's statement from the record and Mr. Allred said it was not made to be put in the record, but as a matter of personal privilege.

"It is a statement indicating that the defendants are guilty of an offense of which they are not charged in this suit," said Mr. McKnight. "It is wholly irrelevant and prejudicial, and we emphatically deny it."

Mr. Allred asked the witness if anyone had suggested to him his remark about tax evasion.

"The witness was answering the attorney general in regard to price changes," said Judge Ames.

"The statement of Judge Ames is not true," declared Mr. Allred. Judge Ames rose and stepped forward until he stood face to face with the attorney general.

"I beg your pardon," he said. "What I said was true. I have treated you with perfect courtesy and I wish to be treated with courtesy. Let us understand that."

"We understand it," replied Mr. Allred.

The attorney general then had the stenographer read his question and Mr. Holmes' answer, after which John E. Cofer, of special counsel for the State, moved to strike out that part of the answer relating to gasoline tax evasions, as not called for by the question.

"I wish to withdraw my question about whether any one told the witness to say that," said Mr. Allred. "I do not think any of the attorneys present would do so and I am sorry if the question carried that imputation."

"I will answer it, anyway," said Mr. Holmes. "I want to say 'no'."

Date for resumption of testimony will be determined by Special Commissioner Shelley later. Names of the next witnesses have not been announced by Attorney General Allred. Mr. Allred has stated he is uncertain whether Walter C. Teagle, president of the Standard Oil Co. (New Jersey), will be called to testify.

KANSAS FIELDS

(Continued from Page 86)

13-19-2w, was plugged after finding water at 3,460-72 feet. Dickey's No. 2 Decker, SW cor. NW SE, Section 35-19-2w, made 4,506 bbls. from the chat at 2,942-64 feet. Rosenthal and others' No. 2 Dielman, SE cor. NE SW, Section 35-19-2w, made 1,394 bbls. from the pay at 2,954-3,004 feet. Vernon and others' No. 2 Drum, NW cor. NE, Section 35-19-2w, flowed 760 bbls. from pay at 2,905-58 feet. Twin Drilling Co.'s No. 1 Hawkins, SW cor. NW SE, Section 16-19-1w, was plugged after finding water at 3,510-14 feet. United-Gypsy Oil Co.'s No. 1 McGill, SE cor. NW, Section 20-19-1w, pumped 1,368 bbls. from the Viola at 3,416-28 feet. Maddison and Shell Petroleum Corp.'s No. 1 Johnson, NE cor. SE, Section 29-19-1w, pumped 100 bbls. of oil and 500 bbls. of water from the Viola at 3,422-32 feet.

Reno County

Olson Drilling Co. and others' No. 1 Darknuh, C SE NE, Section 23-23-4w, is a location.

Rice County

Rogers and others' No. 3 Raint, NE cor. NW SE, Section 3-21-3w, is a rig.

Sedgwick County

Cameron and Great Basin Oil Co.'s No. 1 Landon, C SE NW, Section 13-28-2, is a rig. Continental Oil Co. and others' No. 1 Rothfuss, NE cor. NW NE, Section 7-26-1 (O.W.D.D.), was rigging up, total depth 3,391 feet. Stearns and Streeter's No. 1 Mead, NE cor. SE SE, Section 16-25-1, is a location. Continental Oil Co. and others' No. 1 Horton, SW cor. NW, Section 10-25-1, was plugged after finding water in the Viola at 3,452-66 feet. Continental Oil Co.'s No. 1 Hampson, SE cor. NW, Section 15-25-1, was abandoned at 3,457 feet.

Stafford County

Midwest Refining Co.'s No. 11 Figger, C NE NE, Section 1-23-12w, pumped 140 bbls. from the Silicious lime at 3,579-3,616 feet.

CLASSIFIED WANTS

USED GASOLINE PLANT EQUIPMENT

All modern material in first class condition, slightly used, can be bought at reasonable prices. This equipment far above the average. Ready for immediate use.

Assorted Clark Engine, 90 HP, 180 HP and 400 HP.
1—50,000 gal. Ereco absorption plant with pumps, cooling towers, etc.
1—50,000 gal. Ereco stabilizing unit complete.
Assortment of accumulator, scrubber and storage tanks.
Assorted pumps suitable for gasoline plants. Air compressors.
Portable steel buildings ranging in size from 20′x20′ to 30′x200′.
500 tons of line pipe and casings. Assorted sizes from 2″ to 12″.
500 tons of pipe valves and fittings. Assorted sizes. Part new unused stock.

See this equipment at Little River and Bowlegs, Okla., before you buy. The prices are right.

W. S. BABSON

Beacon Life Bldg., Tulsa, Okla.

Office Phone 5-3416 Plant Phone 1112

CLASSIFIED WANTS

Read by Oil Men Everywhere

RATES

The rates for Classified Advertisements are 35 cents a line for the first insertion and 25 cents a line for each additional inserton. Six words usually constitute a line. The following table will enable you to figure the cost of your advertisement:

	1 time	2 times	3 times	4 times
3 lines	1.05	1.80	2.55	3.30
4 lines	1.40	2.40	3.40	4.40
5 lines	1.75	3.00	4.25	5.50
6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
10 lines	3.50	6.00	8.50	11.00

Compute white space at the above rates.

Mail your Classified Advertisement to

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

FOR SALE—EQUIPMENT

200 AMP. General Electric Arc Welder; portable; 220 V. 3 ph. 60 cy. Complete. Like new. $350. 7x6 Ingersoll-Rand Type ER-1 Air Compressor. Like new. $225. 8x6 Ingersoll-Rand Type ER-1 Air Compressor. Like new. $250. 36"x18' Fifield Screw Cutting Lathe. $650. Also large stock of lathes, shapers, pipe machines, bolt threaders, etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, Ohio.

CROSS CRACKING UNIT
600-Bbl., COMPLETE, A-1 CONDITION
PRICE $3,500 FOR QUICK SALE
WRITE FOR DETAILS AND ENGINEERS' REPORT

LEAD LINED AGITATORS
Two 10' dia. x 25' high, 213-bbl. cap'y.
One 12' dia. x 30' high, 350-bbl. cap'y.
INSPECT AT MILLER REFY.,
HUMBOLDT, KANSAS

OWNED BY
BROWN-STRAUSS CORPORATION
KANSAS CITY, MISSOURI
Mail P. O. Box 1109 L.D. Phone 172

NO. 2 NATIONAL Drilling Machine and tools. Complete. In good condition. For Sale or Trade. Cheap. Write or phone No. 6, T. L. Horner, Box 223, Barnsdall, Okla.

FOR SALE—At discount, New W K M Deep Well winch mounted on 15-30 McCormick-Deering Tractor. Browning-Ferris Machinery Co., Dallas, Tex.

FOR SALE—One new Magnetometer. Address 646 Michigan Theatre Bldg., Detroit, Mich.

EQUIPMENT WANTED

WANTED — 10,000 to 15,000-gallon storage tanks, still and necessary equipment for the construction of a small capacity Refinery. Address Box F-180, The Oil and Gas Journal, Tulsa, Okla.

INCORPORATIONS

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

BUSINESS OPPORTUNITIES

OIL located before drilling. Geophysical method. Topgodometer Instrument; take p..y in oil. No oil, no pay, except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

WANTED—Brokers and salesmen in all the Cities in U. S. and Canada to cooperate with me in selling producing and nonproducing royalties at the right prices, located in the hot areas in Oklahoma, Kansas and Texas. Chances for big profits; send today for lists and maps. James R. Haynes, Grantville, Kansas.

PIPE LINE AND PRODUCTION
We check shortage. Make necessary investigations. Thirty years' experience. Consultation confidential. Charges reasonable. Box F-171, The Oil and Gas Journal, Tulsa, Okla.

DELAWARE CORPORATIONS organized. Smallest cost. Lowest taxes. Quick service. No restrictions. $100,000 capitalization cost $48. Corporation Fiscal Co., Wilmington, Del.

WILL trade fee title 320 acres unleased land, Terrell County, Texas, for 250 shares Mid-Continent Petroleum Corp. stock or equivalent. Box 97, University Station, Fayetteville, Ark.

HAVE 400 acres in East Texas, Rusk County oil field, close to gushers. Will assign half interest to those drilling and completing wells. Inquire, Jacobson Bros., 1018 Fifth Ave., Pittsburgh, Pa.

WILL GIVE 1/10 interest in full mining claim—20 acres—for 12-inch hole 1,200 feet deep. Over $60,000 spent on this property—thousands in sight. C. J. Greene, Sells, Ariz.

RANCHES AND FARM LANDS

FOR SALE—43,900-acre ranch. Presidio County, Texas, at $3.50 per acre patented basis. Address: A. J. Bogel, Box "N," Marfa, Texas.

IMPROVED SOUTH TEXAS
RANCH WITH OIL PRODUCTION
FOR SALE—$7.25 per acre. Facing concrete highway, 40,000 acres including one-half royalty. 75 miles fencing, 20 water wells, windmills and concrete tanks. Four sets of improvements, 2,000 acres cultivation, 80% rich agricultural land. About $20,000 per annum royalty payments. Tremendous gas supply, unlimited oil possibilities. Oil and Gas line through ranch. Wild game in abundance. Will also sell livestock. Terms. Address Box F-164, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—MAPS

FREE TEXAS MAP
Just compiled from Government and other sources. Shows oil fields and geology. Free copy on request. Moss & Company, 1108 Santa Fe Building, Dallas, Texas.

OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla

HELP WANTED

WANTED—Oil and gas lease broker in Minnesota. Leads furnished, excellent offering. Write W. J. Dobbs, 915 Tower Petroleum Building, Dallas, Texas.

SITUATIONS WANTED

REFINERY MAN—Eleven years' laboratory and plant experience with modern refinery equipment. Desire connection with equipment manufacturers or with refinery. References. Available immediately. Address Box F-183, The Oil and Gas Journal, Tulsa, Okla.

STORES OR PURCHASING EXECUTIVE
Experienced Buyer, warehouseman, stock control, salvage recovery, M & S accounts. Good health and references. Address Box F-182, The Oil and Gas Journal, Tulsa, Okla.

SUPERINTENDENT of construction or operation of small refinery now open for employment. Address Box F-181, The Oil and Gas Journal, Tulsa, Okla.

MONEY RAISING

JAMES E. MILLER CO. will co-operate with responsible firms or parties seeking aid in financing projects of higher order. 207½ East Third Street, Tulsa, Okla.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

JOHN MORRIS, 3608 WARREN ST., PHILADELPHIA, Pa., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 2443 N. W. 12th, Oklahoma City.

CAPITAL—Our distributing facilities are broad enough to handle all types of issues, both large and small, for those desiring capital through the sale of securities.

BROOKWORTH,
110 East 42d St., New York City

ROYALTIES—PRODUCTION

MONTHLY INCOME-PAYING Royalties under Oklahoma City and Seminole Wilcox Sand wells offered. W. E. Cook, 342 Court Arcade, Tulsa, Oklahoma.

ROYALTIES in the territory of coming big development in Kansas, Stafford, Barton, Ellsworth, Kingman and Stevens Counties, core drilled. Also producing royalties. Special service to brokers. Send for list. James R. Haynes, Grantville, Kans.

HIGH GRADE producing oil and gas royalties offered to dealers. Billie Smallwood, P. O. Box 2261, Tulsa, Okla.

UNUSUAL OPPORTUNITIES
FOR ROYALTY INVESTORS
AND DISTRIBUTORS

THE MERCURY COMPANY
Philtower Building, Tulsa, Oklahoma

JAMES B. McANALLY

Speculative & Investment Royalties

Hunt Bldg., Tulsa, Oklahoma

A service devoted exclusively to supplying opportunities to live wire brokers and dealers.

Information to Investors with address of nearest dealer on request.

CHEAP ROYALTIES—Shell-Humble midwest Blocks, Kans., Okla., Texas. Big list, agents wanted. Harry Haynes, Grantville, Kans.

ROYALTY and leases Goliad County, Texas, close up to Humble location on huge core drilled block. James R. Haynes, Grantville, Kansas.

PRODUCING OIL ROYALTIES
Henry S. Severson, Court Arcade,
P.O. Box 1341. Tulsa, Okla.

Wanted for Resale
in Great Britain
PRODUCING OIL ROYALTIES
Correspondence invited
MID-WEST OIL ROYALTIES, LTD.
120 Moorgate. London, E.C.
England
Cables. Desairusto. London

Dealer in Odd Lots
PRODUCING OIL ROYALTIES
I Buy and Sell
John L. Dickson, Box 1113, Tulsa, Okla.

ROYALTIES, leases—blocks—lands in fee, close to school and college. D. J. Perry, Edmond, Okla.

LEASES—PRODUCTION

TERRELL COUNTY, TEXAS, 88 form Oil and Gas Lease. Forty acres, Section 53-D.6. Twenty-year lease, 14 years more to run. All rentals paid. Must sell. Mr. C. Christianson, Hotel Atlanta, Seventh and Mission Sts., San Francisco, Calif.

10 TO 160 ACRES near East Texas operations $2.50 to $10 likely to be worth $500 acre shortly. You can make plenty money if buy right class property. E. Croft, Proctor, Texas.

IMPORTANT — 20,000-acre block in oily Brown county, deep test 4,000 to 6,000 feet now starting in center of block. Core tests have defined "high" and enough gas in one core test to furnish fuel for 2 boilers. Bankers and business men buying in this block! Lease tracts small or large while they last. Dealers proposition; buyers opportunity. W. J. Dobbs, 915 Tower Petroleum Building, Dallas, Texas.

10,000 ACRES for 3,500-ft. well Yalobusha County, Mississippi. Best wildcat structure entire United States. 1 yr. free, 25c rentals. 223 Court, Memphis, Tenn.

MR. BROKER AND INVESTOR
Inquiries for leases, Royalties, Drilling Blocks and Oil Payments solicited. W. R. Miller, 1216 Hurley Ave., Ft. Worth, Tex.

WILL SELL 40 acres of my 80-acre lease close to deep test drilling in S.E. Oklahoma. Address Edythe Burnham, 312 Walnut St., Texarkana, Ark.

TEXAS PANHANDLE Gas Production and Royalties is my Hobby—get my prices. Wire or write. E. B. Reeves Box 13. Alanreed, Gray County, Texas

FOR SALE

Several thousand acres of mineral rights, covering one-half of the oil and minerals on the land. For sale on the basis of $500 per quarter, for one-half of the mineral rights thereon. They are perpetual and participating. Located in Hodgeman, Trego, Ford, Kearney, Seward and Haskell Counties, Kansas. Also have several commercial blocks on good structure, and several drilling blocks. Brokers and Promoters do not answer. Write P. O. Box 471, Dodge City, Kansas, for further information.

LEASE 40 acres N. W. quarter, Section 15-17-29 Eddy County, N. M. A. R. Hewitt, 1500 Upson Ave., El Paso, Texas.

FOR SALE—ATTRACTIVE LEASES
Five hundred acres in shallow Medina County Pool. Wells better than 200 bbls. have been drilled in field at 500 feet and less. Berea sand—long life. Corning grade oil now $1.05 and oil advancing in price. No better business to invest in. Producing wells as close as 35 feet apart. Inquire immediately. James Tallon, Cottage St., Ashland, Ohio.

CANCELLED Government permits refiled, or new ones taken, under reopening order of Apr. 4, 1932, anywhere in Northern New Mexico. State Leases renewed, or new ones taken, or any matter affecting same looked after promptly. Staplin & Staplin, Santa Fe, N. M.

NEW MEXICO Oil Leases, Lands and Royalties. Free State Map and information. Roy G. Barton, Clovis, New Mex.

A FEW forty-acre tracts in N. W. and a few in S. W. Lea at depression prices. Under Long Term State Leases belonging to a client who needs money, write us. Staplin & Staplin, Santa Fe, N. M.

PATENT ATTORNEYS

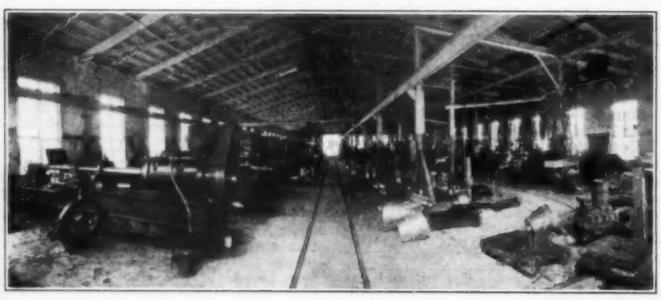
REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER, ALLWINE & ROMMEL
Suite 418-815, 15th St., N.W.,
Washington, D. C.

A FLYING START

Leading business experts agree that the return of normal and prosperous times is not far distant. Many business executives are now laying plans to get a Flying Start in their industries.

Bridgeport also has confidence in the future—and is gathering its forces to meet the increased demand for Bridgeport products which is sure to come. For 25 years Bridgeport has held its leadership through adapting itself to the needs of the oil industry, with constantly improved service, and the highest grade, newest type tools and equipment obtainable. You too can save money by dealing with Bridgeport.

MODERNIZED SHOP EQUIPMENT



Bridgeport shops are fully equipped with the latest type of electric driven machinery to handle any kind of manufacturing and repair work. No job is too large—or too small. Some of the new features are the addition in Rotary machinery of an 11-inch hollow spindle lathe, for returning of Tool Joints and long Drill Collars. With this lathe, we can return boxes and pins without cutting the joints off of stems. **(This means a saving in time and one-third of the usual expense).** Also modern milling machines and Turret Lathes are at your service in our shops.

Our machinists and mechanics are all skilled workmen, with years of experience in forging, heat treating, joint turning, electric or acetylene welding, bronzing and general overhauling of engines, pumps, etc.

Bridgeport has readjusted itself to present conditions, new methods, with lowered overhead, enabling us to do your shop work at material savings in cost to you. We are organized to give day and night service on shop work in emergency cases, to accommodate our customers. Save money by calling Bridgeport COLLECT, for quotations on your future shop work. Phone 2-1431, 2-1432, or L. D. 59.

WE WILL BUY

Bridgeport is at all times in the market for good grades of used casing, line pipe, Rotary drill pipe, Seamless upset tubing, etc. Also 40 H.P. Gas or Oil pumping engines, large Boilers and complete or separate Rotary Units. Turn your surplus material into cash. Write or wire the Wichita office.

SEND FOR FREE BARGAIN LIST

Send for your FREE copy of Bridgeport's latest bargain list. You will find many unusual chances to save money in this list. Just fill out and mail the coupon below, today sure.

BRIDGEPORT MACHINE COMPANY

Wichita, Kansas

Branches Conveniently Located in All Active Mid-Continent Oil Fields

BRIDGEPORT MACHINE COMPANY, Wichita, Kansas. Check here

Gentlemen: Please send me copy of your Free bargain list. ☐

I am in the market for .....

..... (New) ☐ (Used) ☐

Please advise me if you can supply me—also quoting your lowest delivered price to .....

Name .....

St. & No. .....

City ..... State .....

Index to Advertisers

A

Allis-Chalmers Mfg. Co. .....
Allis, Louis, Co., The 62
Allsteel Products Mfg. Co. .....
American Cable Co., Inc. .....
American Cast Iron Pipe Co. ....
American Meter Co. 1
American Steel & Wire Co. .....
Armstrong Machine Works .....
Ayer & Lord Tie Co. .....

B

Barber-Greene Co. .....
Baroid Sales Co. .....
Barrett Co., The .....
Barret, William M., Inc. .....
Bethlehem Steel Co. 5-34
Bignall & Keeler Machine Works.107
Black, Sivalls & Bryson, Inc. 60
Bradford Motor Works, Inc. ....
Brewster Co., Inc., The 8
Bridgeport Machine Co. 120
Bristol Co., The .....
Brown Instrument Co. 21
Byers, A. M., Co. .....
Byron Jackson Co. .....

C

Carey, Philip, Co., The 99
Caterpillar Tractor Co. .....
Chain Belt Co. .....
Chaplin-Fulton Mfg. Co., The 97
Chapman Valve Mfg. Co., The ...
Chicago Bridge & Iron Works ...111
Cities Service Co. .....
Classified Wants 118-119
Cleveland Trencher Co., The ....
Continental Supply Co., The .....
Crane Co. 4

D

Darling Valve & Mfg. Co. .....
Dart, E. M., Mfg. Co. .....
Davis Regulator Co. .....
Dearborn Chemical Co. .....
Deep Water Oil Terminals, Inc. ..
De La Vergne Engine Co. .....
Dixon, Joseph, Crucible Co. .....
Dresser, S. R., Mfg. Co. 25

E

Eagle-Picher Lead Co. .....
Emsco Derrick & Equipment Co. . 79
Ethyl Gasoline Corp. .....

F

Fenwick-Reddaway Mfg. Co. ....
Fisher Governor Co. 50
Foster Wheeler Corp. 85
Foxboro Co., Inc., The 37
Frick-Reid Supply Corp. 40B

G

Garlock Packing Co., The .....
Gasoline Products Co., The .....
Gaso Pump & Burner Mfg. Co. ...
.....Inside Back Cover
General Electric Co. .....
General Paint Corp. .....
Goodyear Tire & Rubber Co. ....
Gott, H. P., Mfg. Co., Inc. .....
Goulds Pumps, Inc. 3
Graver Tank & Mfg. Corp. 70
Gray Processes Corp., The .....
Griscom-Russell Co., The 96
Guiberson Corp., The 108

H

Hall, R. B., & Co. .....
Halliburton Oil Well Cementing Co. 6
Hazard Wire Rope Co. 74
Hedges-Walsh-Weidner Co., The..
Heeter, C. M., Sons & Co. .....
Highland Iron & Steel Co., The ..
Hill-Hubbell & Co. .....
Hope Engineering Co. 7
Hughes Tool Co. .....Back Cover
Humble Oil & Refining Co. .....

I

International Harvester Co. of America .....
International-Stacey Corp. .....

J

Jackson Co., Byron .....
Jarecki Mfg. Co. .....
Jenkins Bros. .....
Jerguson Gage & Valve Co. .....

K

Kellogg, M. W., Co., The 2
Kennedy Valve Mfg. Co., The ...

L

Landis Machine Co., Inc. .....
Layne & Bowler Co. .....
Leader Iron Works, Inc. .....
Lincoln Electric Co. .....
Linde Air Products Co. .....
Lufkin Foundry & Machine Co., The .....
Lummus Co., The .....
Lunkenheimer Co., The 115

Mc

McClintic-Marshall Corp. 34
McIntosh & Seymour Corp. .....
McKee, Arthur G., & Co. .....

M

MacWhyte Company .....
Maloney Tank Mfg. Co. ..Front Cover
Mathieson Alkali Works, Inc., The 40A
Metric Metal Works 1
Midwest Piping & Supply Co., Inc.
Moore, Lee C., & Co., Inc. .....
Munn & Co. 100

N

National Lead Co. .....
National Supply Co. 59
National Transit Pump & Machine Co. .....
National Tube Co. .....
Naylor Pipe Co. .....
Neilan Co., Ltd. .....

O

Oakite Products, Inc. .....
Oil and Gas Journal, The 72
Oil Well Supply Co. 80

P

Page Fence Ass'n. 101
Page Steel & Wire Co. .....
Paraffine Companies, Inc., The ..
Parkersburg Rig & Reel Co., The .
Penberthy Injector Co. 23
Petroleum Equipment Co. .....
Petroleum Iron Works Co. .....
Petroleum Rectifying Co. .....
Petroleum Specialty Co., The ....
Phillips Petroleum Co. 93
Pittsburgh-Des Moines Steel Co. .
Pittsburgh Equitable Meter Co. ..
Pittsburgh Steel Co. 69
Powell, William, Co. 54
Pure Oil Co., The 90

R

Reading Iron Co. 89
Reading-Pratt & Cady Co., Inc. ..112
Reid, Joseph, Gas Engine Co. ....
Republic Steel Corp. 10
Robinson Orifice Fitting Co. 71
Roebling's, John A., Sons Co. ....
Rohm & Haas Co., Inc. .....
Ross-Meehan Foundries Co. 101
Ruberoid Co., The .....

S

Smooth-On Mfg. Co. 97
South Chester Tube Co. .....
Spang, Chalfant & Co., Inc. .....
Sperry-Sun Well Surveying Co. ..
Sureshot Torpedo Co. .....

T

Taylor Forge & Pipe Works ....
Texas Electric Service .....
Timken Roller Bearing Co., The..
Toledo Pipe Threading Machine Co.111
Trackson Co. .....
Tretolite Co. 57
Trimont Mfg. Co. .....
Truscon Steel Co. .....
Tube Turns, Inc. 47

U

Union Wire Rope Co. .....
Universal Oil Products Co. 19

V

Vellumoid Co., The .....
Vogel, Felix A. .....
Vogt, Henry, Machine Co. 53

W

Wailes Dove-Hermiston Corp. ...
Warren Petroleum Co. .....
.....Inside Front Cover
Westco Pump Corp. .....
Wickwire Spencer Steel Co. .....
Williamsport Wire Rope Co. ....
Winkler-Koch Engineering Co., The
Worthington Pump & Machinery Corp. 42-43

Y

Youngstown Sheet & Tube Co., The

The OIL and GAS JOURNAL

PRODUCING REFINING PIPELINE ENGINEERING MARKETING

Vol. 31 No. 1 TULSA, OKLAHOMA, MAY 26, 1932

Copyright, 1932, by The Petroleum Publishing Co.

Table of Contents

SPECIAL ARTICLES

Outlook Shows Continued Improvement 11
By Andrew M. Rowley
Larger decrease in consumption than had been expected is important factor deserving of careful consideration.

Program Formed For the Oil Industry 12-13-14
By Earl Oliver
Comprehensive plan presented for permanent stabilization.

California Allotment Revised by Executive Committee 14
By L. P. Stockman

Destructive Competition Must Cease 15
By Andrew M. Rowley
Welfare of equipment branch depends on manufacturers sticking to fair prices.

Low Vapor Pressure Gasoline Logical Way Out 16
By W. T. Ziegenhain
Annual meeting of association prompts frank discussion of markets.

Oil Conference Nearing Agreement 17
By A. E. Mockler
American, British and Dutch groups awaiting commitment by Russians.

Plans Pipe Line Survey From Mosul 17

W. S. Farish Tells Outstanding Need 18
In California address says control and unified operation must come.

Only One Remedy Declares C. B. Ames 20
Not price fixing but control of supply is needed.

Decision in Champlin Case Sweeping 22
Upholds curtailment to market demand and right to protect common supply.

A Real Program (Editorial) 24

Program for A. P. I. at Tulsa Meetings 38

Properties of Paraffin Hydrocarbons and Design of High Pressure Equipment 41
By Dr. G. G. Brown

Field Problems and Their Solution 77
Edited by Thomas F. Smiley

FIELD OPERATIONS

Late Fields 39

Michigan 39
By George A. Whitney

Tioga Gas Field 46

North Louisiana-Arkansas, Mississippi 47
By J. R. Crumpton

East Texas 48
By L. E. Bredberg

West Texas and North Texas 50
By L. E. Bredberg

Kansas 56
By W. A. Spinney

Oklahoma 57
By W. A. Spinney

Gulf Coast 60
By Neil Williams

Rocky Mountain Area 61
By Tolbert R. Ingram

Eastern Fields 61
By Staff Correspondent

California 63
By L. P. Stockman

Southwest Texas 66
By B. D. Stevenson

Canada 67
By Victor Lauriston

Central West 67
By George A. Whitney

REFINING AND MARKETING

Improvement in Motor Fuel Demand 26-27
By C. O. Willson
Approach of holiday period stimulates contract and spot business in Oklahoma. Kerosene prices decline.

Chicago Tank Car Market Looks Better 28
By Robert C. Conine
Tone shows improvement following week of price cutting.

Eastern Coast Markets Continue Firm 29
By A. E. Mockler
Recent advances in gasoline, fuel oil and lubs well maintained.

Refinery and Crude Prices 30-31

Tank Wagon Quotations 32

Of Interest to Sales Departments 33

Brief Items for Petroleum Refiners 34

Natural Gasoline Manufacture 36

Technical Questions Answered 81
By C. K. Francis, Ph. D.

DEPARTMENTS OF GENERAL INTEREST

Personal Paragraphs About Oil Men 78

Natural Gas Developments 82

Oil Industry Equipment and Supplies 85

Classified Want Advertisements 87

The Advertisers' Index 88

BRANCH OFFICE CORRESPONDENTS

L. E. Bredberg, 601 Petroleum Building, Fort Worth, Texas.
Robert C. Conine, Room 1416, 6 North Michigan Ave., Chicago, Ill.
J. R. Crumpton, 540 Ricou Brewster Building, Shreveport, La.
Paul A. Elliott, Chronicle Office, Muskegon, Mich.
Tolbert R. Ingram, 130 State Office Building, Denver, Colo.
Charles E. Kern, 606 District National Bank Building, Washington, D. C.
Victor Lauriston, 35 Stanley Ave., Chatham, Ontario, Canada.
B. E. V. Luty, Bessemer Building, Pittsburgh, Pa.
A. E. Mockler, Suite 2803, No. 19 Rector Street, New York, N. Y.
B. D. Stevenson, 1504 Milam Building, San Antonio, Texas.
L. P. Stockman, 522 Union Oil Building, Los Angeles, Calif.
Leon H. Walter, Oil City Derrick, Oil City, Pa.
George A. Whitney, Box 98, Main Post Office, Toledo, Ohio.
Neil Williams, 1116 Second National Bank Building, Houston, Texas.

Refinery Section Starts on Page 26